JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J291EA, HR-J291MS, HR-J297MS, HR-J695EA

VHS PAL NTSC Hi-Fi

Regarding service information other than these sections, refer to the service manual No. 82915 (HR-J290EU). Also, be sure to note important safety precautions provided in the service manual.

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-J291EA, HR-J695EA.)*

GENERAL

Power	:	110 V – 240 V~, 50 Hz/60 Hz
Power consumption		
Power on	:	Approx. 12 W
Standby mode	:	3.0 W
Video Head system		
HR-J695EA	:	DA4 (Double Azimuth) head helical scan system
HR-J291EA	:	Rotary two-head helical scan system
Tape speed		
(SP)	:	23.39 mm/sec
(LP)	:	11.69 mm/sec
Tape format	:	Tape width 1/2" (12.7 mm high density VHS tape)
Maximum recording time		
(SP)	:	240 min. with E-240 video cassette
(LP)	:	480 min. with E-240 video cassette
Rewind time	:	Approx. 180 (±30) sec. with E-180 cassette
Dimensions (W x H x D)	:	360 mm x 94.5 mm x 270 mm
Weight	:	4.0 kg
Operating temperature	:	5°C to 35°C
Operating humidity	:	Less than 80 %
Timer	:	24 hours display type

VIDEO

Signal system	:	PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording Format	:	PAL/MESECAM/NTSC 3.58/ NTSC 4.43
RF reception		
HR-J695EA	:	PAL B/G, SECAM D/K
HR-J291EA	:	PAL B/G
RF OUT	:	PAL B/G
RF modulator	:	UHF channels 22 – 68 (Adjustable)
Input level	:	VIDEO IN (RCA type) 1.0 Vp-p, 75 Ω, unbalanced
Output level	:	VIDEO OUT (RCA type) 1.0 Vp-p, 75 Ω, unbalanced
Signal-to-noise ratio	:	More than 43 dBm

AUDIO

Input level	:	AUDIO IN (RCA type) –6.0 dBm, more than 47 kΩ
Output level	:	AUDIO OUT (RCA type) –6.0 dBm, less than 1 kΩ
Audio track		
HR-J695EA	:	Mono track and Hi-Fi track
HR-J291EA	:	Mono track
Audio frequency response		
Normal audio	:	100 Hz to 10,000 Hz (–6/+3 dBm)
Hi-Fi audio*	:	20 Hz to 20,000 Hz (–3/+3 dBm)
** HR-J695EA only*		
Audio signal to noise ratio		
Normal audio	:	More than 43 dB (JIS A filter)
Hi-Fi audio*	:	More than 70 dB (JIS A filter)
** HR-J695EA only*		
Audio dynamic range [HR-J695EA only]		
Hi-Fi audio	:	More than 85 dB (JIS A filter)

ACCESSORIES

Provided accessories	:	RF cable, Infrared remote control unit, "R3" battery x 2

Specifications shown are for SP mode unless specified otherwise.
E. & O.E. Design and specifications subject to change without notice.

HR-J291EA,HR-J291MS,HR-J297MS,HR-J695EA V15A1/A11/D1

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SECTION1 SUMMARY
KEY TO ABBREVIATIONS

A	AC	:Alternating Current
	ACC	:Automatic Color Control
	ACSS	:Automatic Channel Setting System
	ADJ	:Adjust
	A/E	:Audio Erase
	AFC	:Automatic Frequency Control
	AFT	:Automatic Fine Tuning
	AGC	:Automatic Gain Control
	A.H.SW	:Audio Head Switch
	ALC	:Automatic Level Control
	AM	:Amplitude Modulation
	AMP	:Amplifier
	ANT	:Antenna
	APC	:Automatic Phase Control
	ASS'Y	:Assembly
	AUX	:Auxiliary
B	B	:Base
	BGP	:Burst Gate Pulse
	BPF	:Bandpass Filter
	BS	:Brodcasting Satellite
	BW or B/W	:Black and White
C	C	:Capacitor, Chroma, Collector
	CAN	:Cancel
	CAP	:Capstan
	CAP.BRK	:Capstan Brake
	CAP.RVS	:Capstan Reverse
	CATV	:Cable Television
	CBA	:Circuit Board Assembly
	CCD	:Charge Coupled Device
	C.CTL	:Chro Control, Capstan Control
	CFG	:Capstan Frequency Generator
	CHROMA	:Chrominance
	CNR	:Chroma Noise Redution
	COMB	:Combination Comb Filter
	COMP	:Comparator Composite Compensation
	CONV	:Converter
	C.ROT SW	:Color Rotary Switch
	CS	:Chip Selcet
	C.SYNC	:Composite Synchronization
	CTL DIV	:Control Divide
	CUR	:Current
	CYL	:Cylinder
D	D	:Drum, Digital, Diode, Drain
	D.ADJ	:Drum Adjust
	DC	:Direct Current
	D.CTL	:Drum Control
	DEMOD	:Demodulator
	DET	:Detector
	DEV	:Deviation
	DHP	:Double High Pass
	DIGITRON	:Digital Display Tube
	DL	:Delay line
	DOC	:Drop Out Compensator
	DUB	:Dubbing
	D.V SYNC	:Dummy Vertical Synchronization
E	E	:Emitter
	EE	:Electric to Eletric
	EMPH	:Emphasis
	ENA	:Enable
	ENV	:Envelope
	EP	:Extended Play
	EQ	:Equalizer
	EXP	:Expander
F	F	:Fuse
	FB	:Feed Back
	FBC	:Feed Back Clamp
	FE	:Full Erase
	FG	:Frequency Generator
	FL	:Filter
	FM	:Frequency Modulation
	F/R	:Front/Rear
	FS	:Frequency Synthesizer
	FSC	:Subcarrier Frequency
	F/V	:Frequency Voltage
G	GEN	:Generator
H	H	:High, Horizontal
I	IC	:Integrated Circuit
	IF	:Intermediate Frequency
	INS	:Insert
L	L	:Low, Left, Coil
	LD	:LED
	LD VTG CTL	:Loading Voltage Control
	LECHA	:Letter Character
	L.M	:Level Meter
	LP	:Long Play
	LPF	:Low Pass Filter
M	MAX	:Maximum
	MD	:Modulator
	MECHA.CTL	:Mechanism Control
	MIC	:Microphone
	MIN	:Minimum
	MIX	:Mixer, Mixing
	M.M.	:Monostable, Multivibrator
	MMV	:Mono Multi Vibrator
	MOD	:Modulation, Modulator
	MODEM	:Modulator-Demodulator
	MPX	:Multiplex
N	NR	:Noise Reduction
O	OSC	:Oscillator
	OSD	:On Screen Display
P	PB	:Playback
	PCB	:Printed Circuit Board
	P.CTL	:Power Control
	PRE-AMP	:Preamplifier
	P.F	:Power Failure
	PG	:Pulse Generator
	PLL	:Phase Locked Loop
	PREM.DET	:Premire Detect
	P.P	:Peak-to-Peak
	PS	:Phase Shift
	PWM	:Pulse Width Modulation
	PWR CTL	:Power Control
Q	Q	:Transistor
	QH	:Quasi Horizontal
	QSR	:Quick Setting Record
	QTR	:Quick Timer Record
	QV	:Quasi Vertical
R	R	:Resistor, Right
	RE(or RC)	:Remocon, Receiver
	REC	:Recording
	REC S 'H'	:Record Start 'Hight'
	REF	:Reference
	REG	:Regulated, Regulator
	REMOCON	:Remote Control(unit)
	RF	:Radio Frequency
	R/P	:Record/Playback
	RTC	:Reel Time Counter
S	S	:Serial
	S.ACCEL	:Slow Accel
	SAOP	:Second Audio Program
	SC	:Scart, Simulcast
	S.DET	:Secam Detect
	SH	:Shift
	SHARP	:Sharpness
	SIF	:Sound Intermediate Frequency
	SLD	:Side Locking
	S/N	:Signal to Noise Ratio
	SP	:Standard Play
	ST	:Stereo
	SUB	:Subtract, Subcarrier
	SW or S/W	:Switch
	SYNC	:Synchronization
	SYSCON	:System Control
T	T	:Coil
	TP	:Test Point
	TR	:Transistor
	TRK	:Tracking
	TRANS	:Transformer
	TU	:Tuner, Take-up
U	UHF	:Ultra High Frequency
	UNREG	:Unregulated
V	V	:Volt, Vertical
	VA	:Always Voltage
	VCO	:Voltage Controlled Oscillator
	VGC	:Voltage Gain Control
	VHF	:Very High Frequency
	V.H.SW	:Video Head Switch
	VISS	:VHS Index Search
	VPS	:Video Program System
	VR	:Variable Resistor or Volume
	V-SYNC	:Vertical Synchronization
	VTG	:Voltage
	VV	:Voltage to Voltage
	VXO	:Voltage X-tal Oscillator
W	W	:Watt
	WHT	:White
	W/O	:With out
X	X-TAL	:Crystal
Y	Y/C	:Luminance/Chrominance
	YNR	:Luminance Noise Reduction
Z	ZD	:Zener Diode

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded ( ) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape 3) Spacers 5) Barrier
   2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

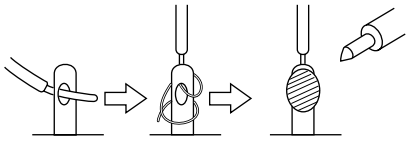


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

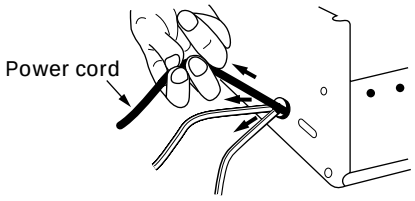


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number :** E03830-001
    2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

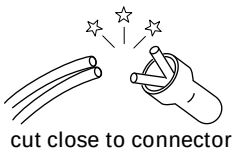


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

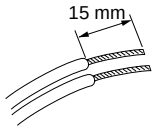


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

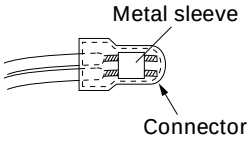


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

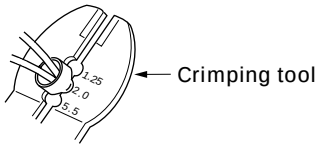


Fig.6

(5) Check the four points noted in Fig.7.

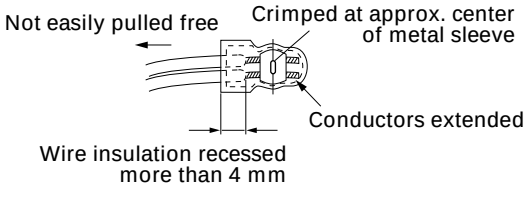

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

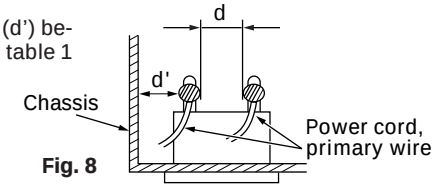


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

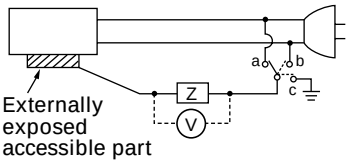


Fig. 9

5. Grounding (Class Ⅰ model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

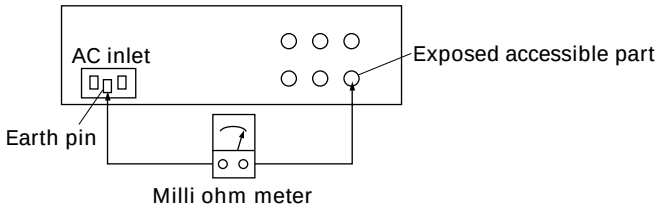


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

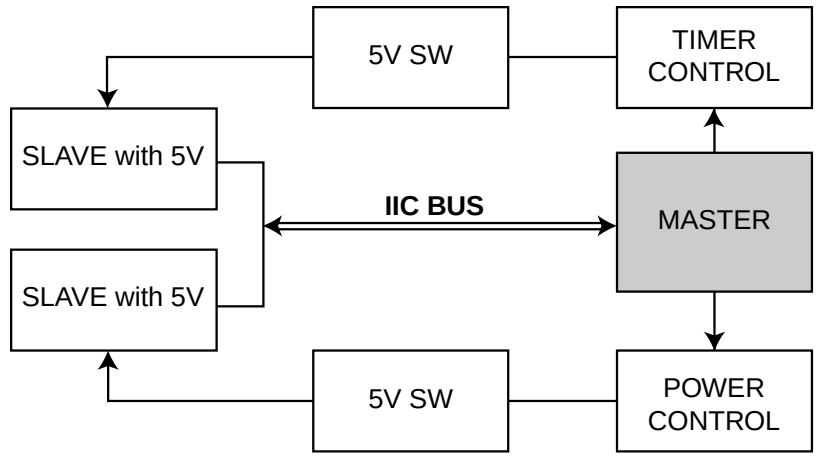
PROPOSAL FOR APPLYING SHORT PROTECTION

• The Contents of Examination

As all the IC that is applied to VCR is controlled by IIC, mutual communication, if Vcc of IC is short or open with detecting 'Acknowledge' data of the specific IC according to each power(5V, 5VT) μ-COM gets unable to detect 'ACK' data.

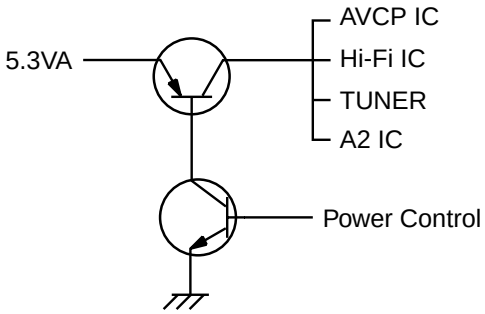
μ-COM regards this case as abnormal one and if it can't detect 'ACK' data for a certain time(3.5 sec) the signal of 'Power Control' and 'Timer Control' are switched to 'Low'. As a result POWER Switching TR is kept from generating heat and fire.

Conception BLOCK Diagram



• POWER for each IC

5.2V

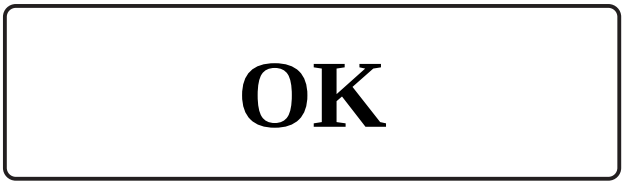


SERVICE NOTICE ON REPLACING EEPROM

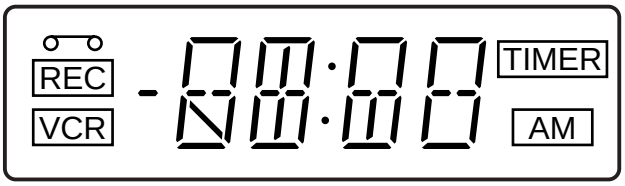
In case that defective EEPROM of PAL models is replaced, to operate these sets from the initial state MP KEY must be repaired as well before delivering to the customer.
If MP KEY isn't repaired the setting of RF OUT channel or LANGUAGE might be different from that for custormer's country.

•**MP KEY** : In case of PAL VCR if holding the REC button on the front panel and the CLEAR button on the remote control handset for 5 ~ 7 seconds with power being switch all and no tapes,
OK is displayed at FLD for FLD models and LED becomes on for LED CLOCK models.
This is the state that initializing EEPROM is finished.
(In case of PAL VCP if holding the REC button on the front panel and the MENU button on the remote control handset for 5 ~ 7 seconds with power being off and no tapes, All the LED DOTs become on. This is the state that initializing EEPROM is finished.)

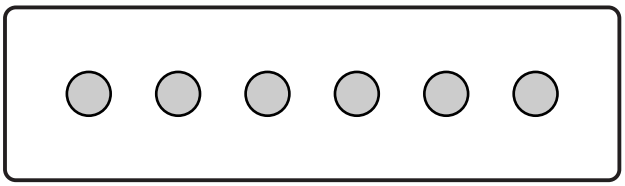
•**MP KEY's function** : MP KEY sets EEPROM's data up to the initial state.



• **FLD MODEL:**
MP KEY "OK"



• **LED CLOCK MODEL:**
MP KEY Switch all on a Light



• **LED DOT MODEL:**
MP KEY Switch all on a Light

SERVICE INFORMATION FOR EEPROM IC SETTING

EEPROM option code No. setting

NAME	HEX	BINARY
OPT1	00	00000000
OPT2	00	00000000
OPT3	00	00000000

WR : OK I : EXIT MOVE : ◀ ▶
EDIT : ▲▼

MASKROM : R00
EEPROM : R00 LG CODE

MODEL	NAME	HEX	BINARY
HR-J695EA	OPTION1	10	00000000
	OPTION2	61	00000000
	OPTION3	44	00000000
HR-J291EA	OPTION1	10	00000000
	OPTION2	51	00000000
	OPTION3	44	00000000
HR-J291MS	OPTION1	00	00000000
	OPTION2	50	00000000
	OPTION3	44	00000000
HR-J297MS	OPTION1	00	00000000
	OPTION2	50	00000000
	OPTION3	44	00000000

WR : OK I : EXIT MOVE : ◀ ▶
EDIT : ▲▼

EEPROM option code No. setting procedure

1. DETECT NEW EEPROM (OPTION EDIT SCREEN)
   - After changing EEPROM, EEPROM EDIT is displayed in the field if pressing “PLAY”key on SET and “0” Key on Remocon in the status of powering OFF.

   For JVC model, change a remocon key by using following JIG key.
   JVC MODEL : FRONT UP + FRONT FF (LG/JVC CODE)
   Option Screen → Change JVC Code → Service JVC R/C

   - Setup option data using the cursor Up/Down key of a remote control.

2. EEPROM WRITED COMPLETE SCREEN
   - Writes data on EEPROM by using REMOCON "OK".
   - If completing the option data screen with a menu key, Powering Off is automatically done and the option edit screen is arranged.

3. PG ADJUST
   a) Insert the PAL SP Test Tape and play.
      Note) Adjust the distance of X, pressing “PLAY” key on SET and “0” key on Remocon after the PAL SP TEST TAPE is inseted.
      In Initial Mode, “- -” is displayed in CLK and LED is ON in DOT.

   b) Press again “PLAY” key on SET and “0” key on Remocon.
      (“- -” is displayed in CLK and LED is blink in DOT. Afer adjusting PG, LED is preserved as a).)

   c) Connect the CH1 of the oscilloscope to the H/SW and CD2 to the Video out for the VCR.

   d) Trigger the mixed Video Signal of CH2 to the CH1 H/SW(W714, W715), and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(W714, W715) signal to the starting point of the vertical synchronized signal, to 6.5H ± 0.5H (416μs, 1H=30.0μs).

4. EEPROM INITIAL
   - SETUP is displayed in the field if pressing the FRONT REC KEY with the remocon number "CLEAR" key pressed in the status of powering Off.
   - AUTO SEARCH is done since the initial screen of ACMS is serviced if powering On.
   - Check basic operation (PLAY/RECORD...)

SPECIFICATIONS

General

Power	: 100~240V, 50/60Hz
Power consumption	: Approx. 12 watts(Energy Saving mode : 3 watts)
Video Head system	: Rotary 2heads, helical scanning system (HR-J291EA/HR-J291MS/HR-J297MS) Double azimuth 4 heads, helical scanning system (HR-J695EA)
Tape speed	: 23.39 mm/sec (SP mode)11.69 mm/sec(LP mode)
Tape format	: Tape width 1/2” (12.7 mm high density VHS tape)
Maximum recording time	: 4 hours in SP mode/8 hours in LP mode (with E-240 tape)
Rewind time	: Approx. 150 sec. (with E-180 tape)
Dimensions (W X H X D)	: 360 x 94.5 x 230 mm
Weight	: 9.0 lbs. (4.0 kg)
Operating temperature	: 41°F-95°F (5°C-35°C)
Operating humidity	: Less than 80%
Timer	: 24 hours display type

Video

Input level	: VIDEO IN (RCA type) 1.0 Vp-p, 75 ohm, unbalanced
Output level	: VIDEO OUT (RCA type) 1.0 Vp-p, 75 ohm, unbalanced
Signal to noise ratio	: More than 43 dBm
RF Modulator	: UHF 28~68(Adjustable)

Audio

Input level	: AUDIO IN (RCA type) -6.0dBm, more than 47kΩ
Output level	: AUDIO OUT (RCA type) -6.0 dBm, less than 1kΩ
Track	Mono track & Hi-Fi track
Frequency response	: Normal : 100 Hz - 10 kHz(-6/+3 dB) Hi-Fi : 20 Hz - 20 kHz(3-/+3 dB)
Signal to noise ratio	: Normal : More than 43 dBm(at SP mode)
Dynamic range	: Hi-Fi : More than 70 dBm(at SP mode) Hi-Fi : More than 85 dBm(at SP mode)

• Design and specifications are subject to change without notice.

:HR-J695EA Model only

SECTION2 CABINET & MAIN FRAME

SERVICE METHOD

(1) Disassembly Flow

Top Case

Bottom Cover

Front Panel

Housing & Deck Assembly

Main C.B.A

LED C.B.A

(2) Re-assembly Flow for service like Fig. 2-1

LED C.B.A

Main C.B.A

Housing & Deck Assembly

(3) To check and replace Electrical parts

① Disassemble the unit according to No.1) Disassembly Flow.

② Re-assemble the unit according to No.2) Re-assembly Flow.

③ Place the unit like Fig. 2-1

④ Check and replace Electrical parts.

NOTE :

① Insert Video Cassette Tape inversely like Fig. 2-1 to check and replace defective parts.

② In disassembling and reassembling, be careful not to damaged CST switch.

(Positioned Upside Down)

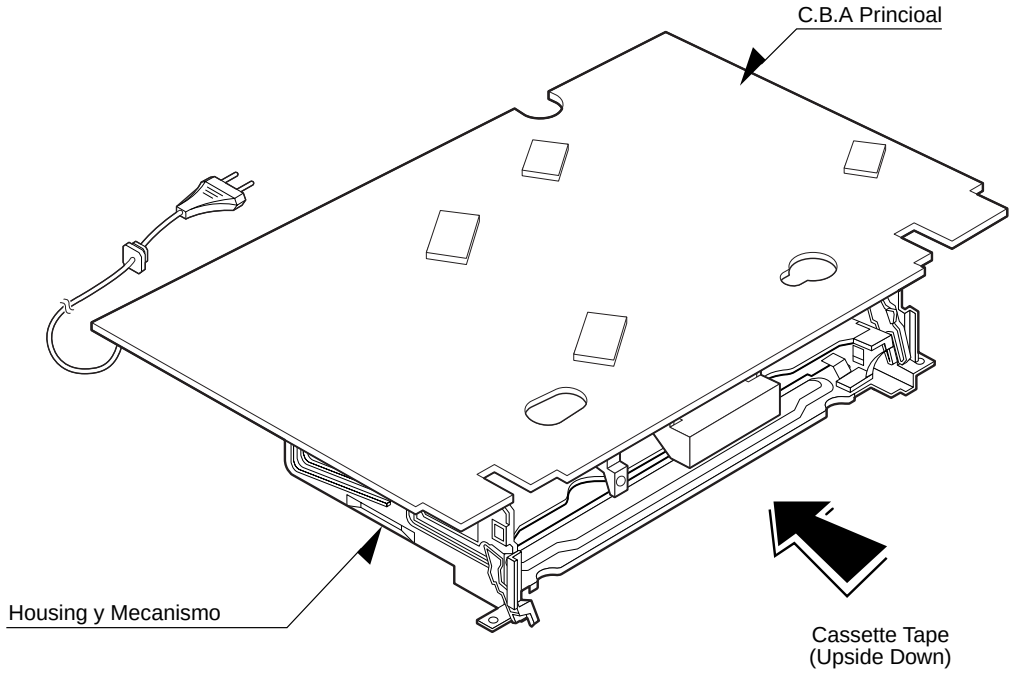
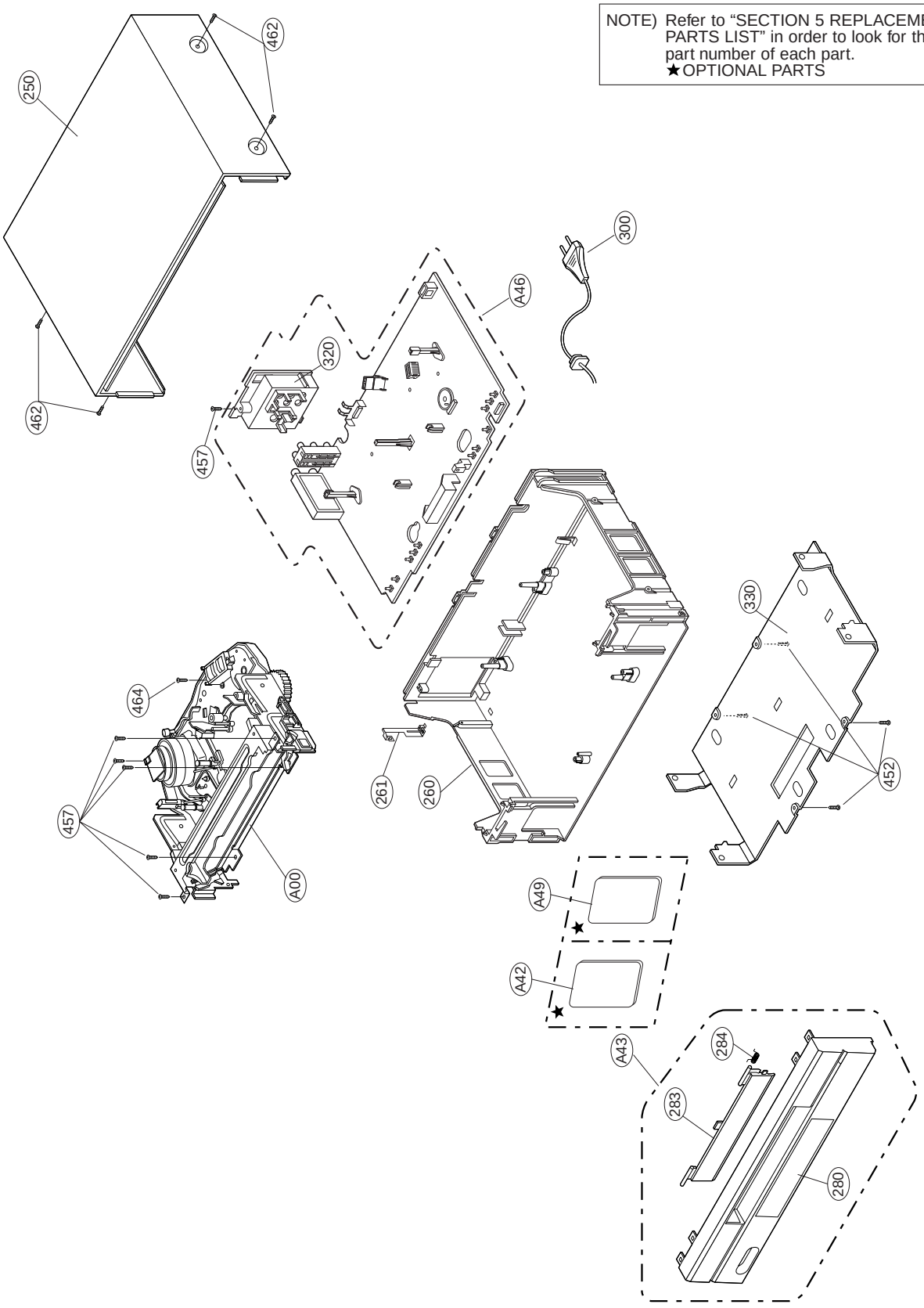


Fig.2-1

EXPLODED VIEWS

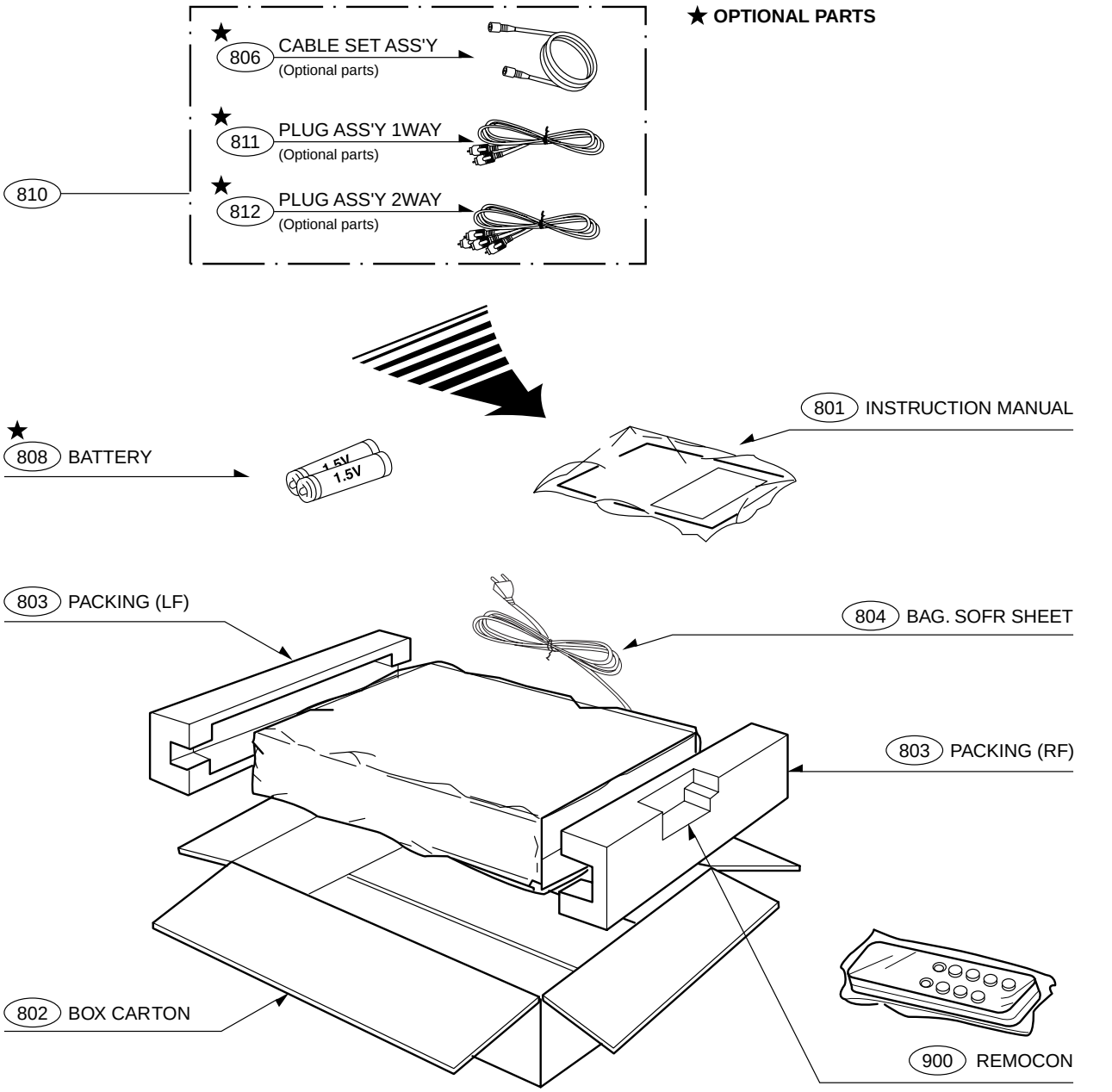
1. Cabinet and Main Frame Section

NOTE) Refer to “SECTION 5 REPLACEMENT PARTS LIST” in order to look for the part number of each part.
★OPTIONAL PARTS



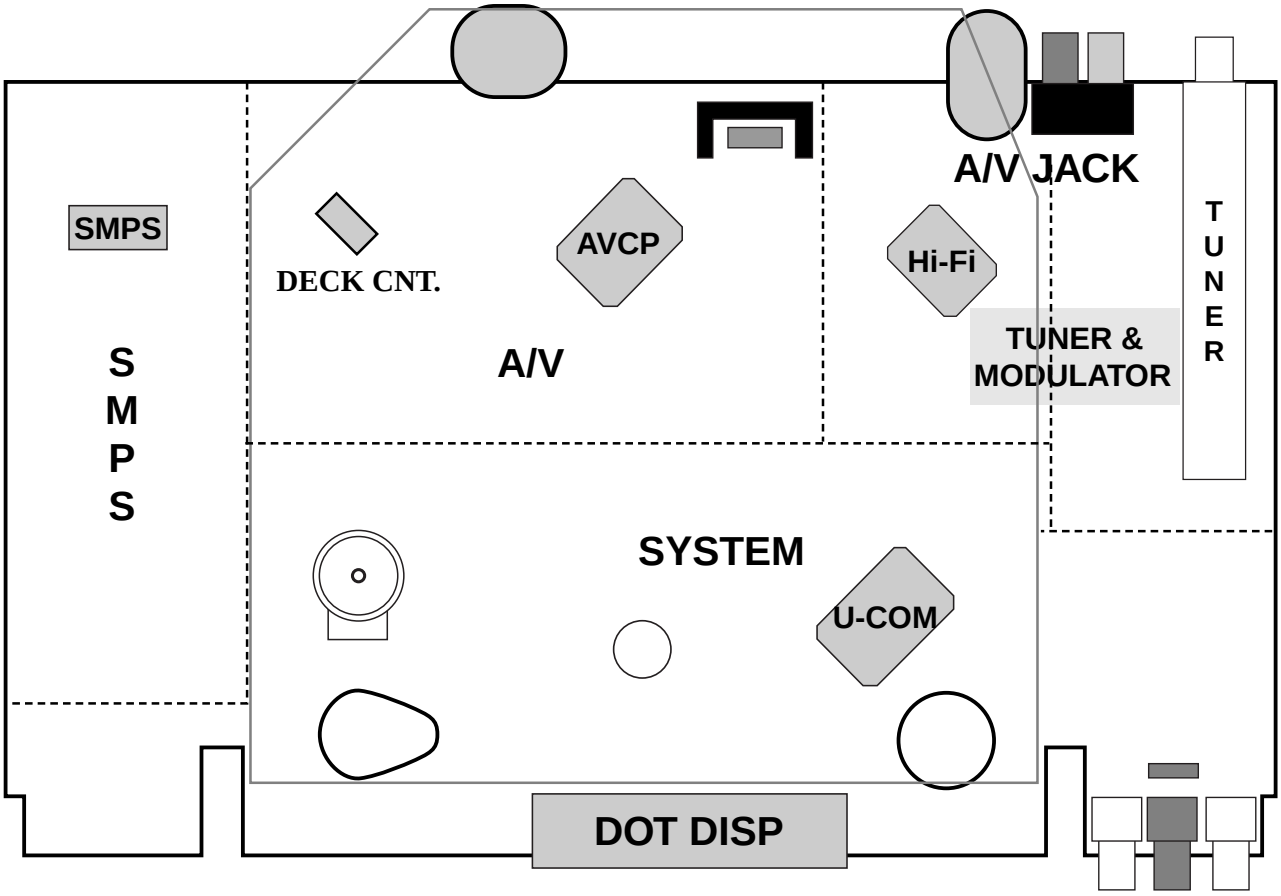
2.Packing Accessory Section

NOTE) Refer to “SECTION REPLACEMENT PARTS LIST in order to look for the part number of each part.



SECTION 3 ELECTRICAL
ELECTRICAL ADJUSTMENT POINTS ARRANGEMENT

: Measurement point
: Adjustment point



ELECTRICAL ADJUSTMENT PROCEDURES

1. Servo Adjustment

1) PG Adjustment

• Test Equipment

a) OSCILLOSCOPE
b) PAL TEST TAPE (VHS SP)

• Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(W714, W715)		6.5 ± 0.5H

• **Adjustment Procedure**

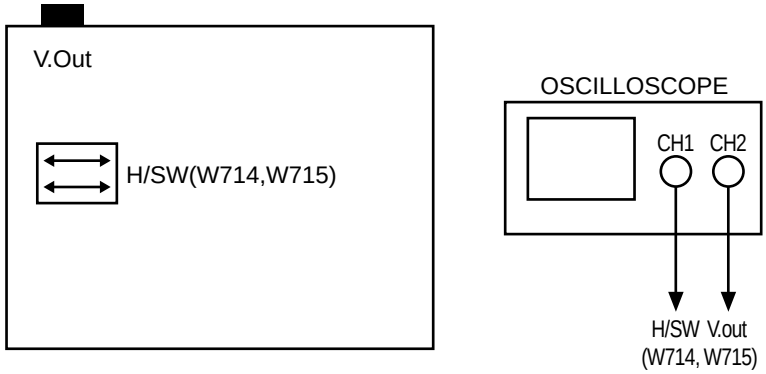
a) Insert the PAL SP Test Tape and play.
Note) Adjust the distance of X, pressing “PLAY” key on SET and “0” key on Remocon after the PAL SP TEST TAPE is inseted.
In Initial Mode, “- -” is displayed in CLK and LED is ON in DOT.

b) Press again “PLAY” key on SET and “0” key on Remocon.
(“- -” is displayed in CLK and LED is blink in DOT.
Afer adjusting PG, LED is preserved as a).)

c) Connect the CH1 of the oscilloscope to the H/SW and CD2 to the Video out for the VCR.

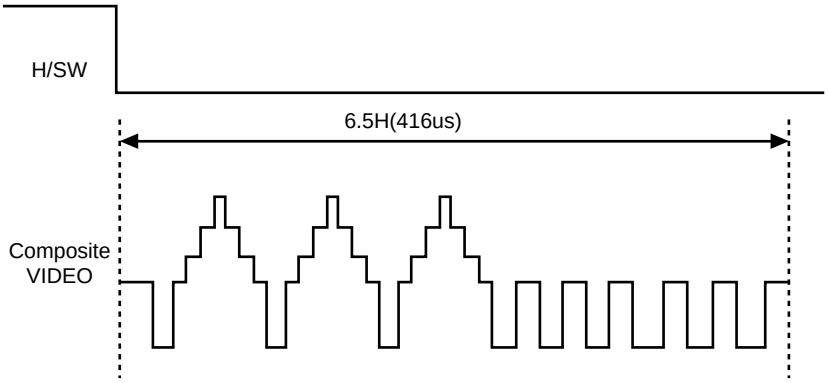
d) Trigger the mixed Video Signal of CH2 to the CH1 H/SW(W714, W715), and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(W714, W715) signal to the starting point of the vertical synchronized signal, to 6.5H ± 0.5H (416μs, 1H=30.0μs).

• **CONNECTION**



ELECTRICAL ADJUSTMENT PROCEDURES

- **WAVEFORM**



- **Attension and Reference**

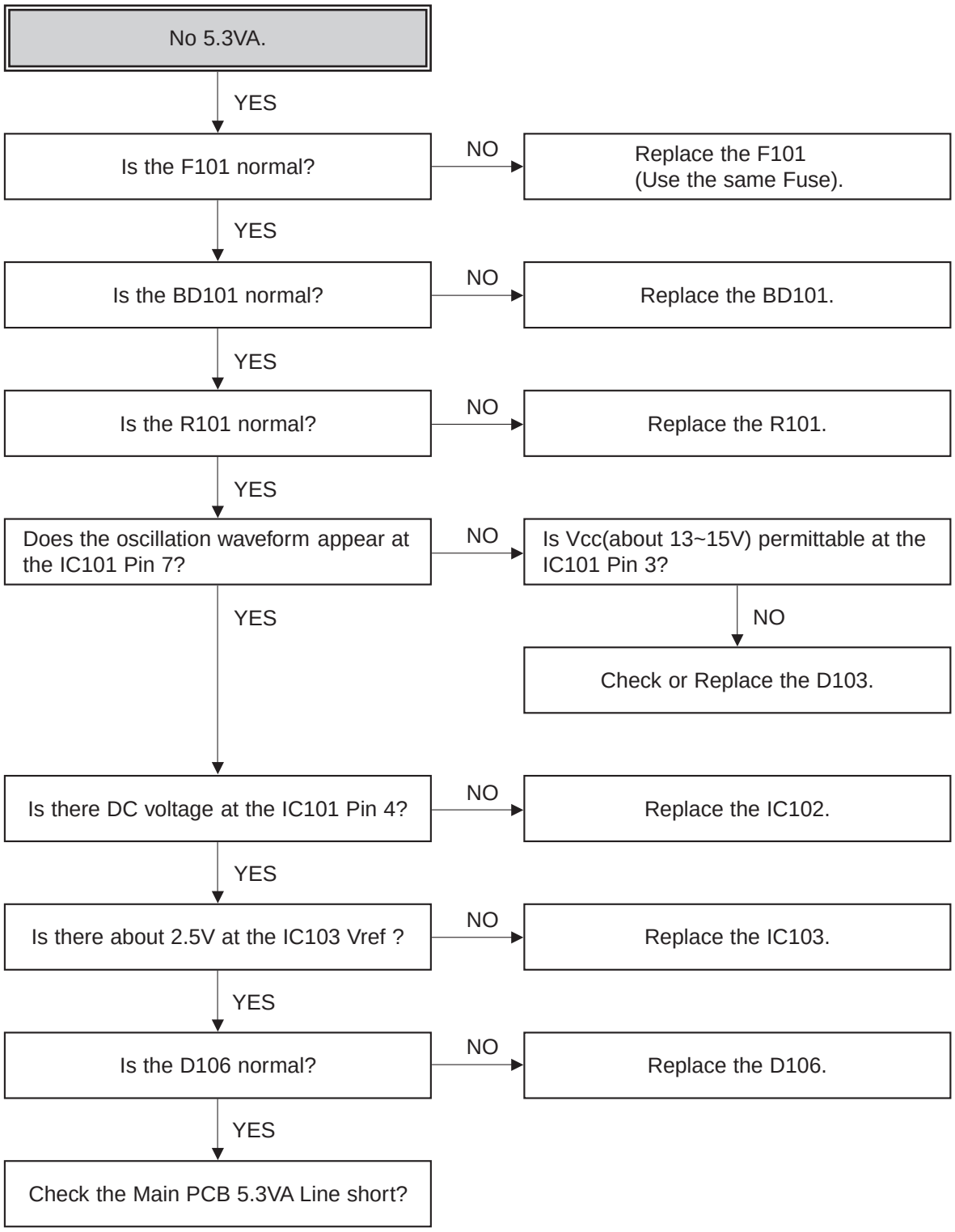
a) The PG checking must do when RF Level is Maximum and SERVO system is Locking (MTR MODE)

b) V.H/SW Level is 2Vpp.

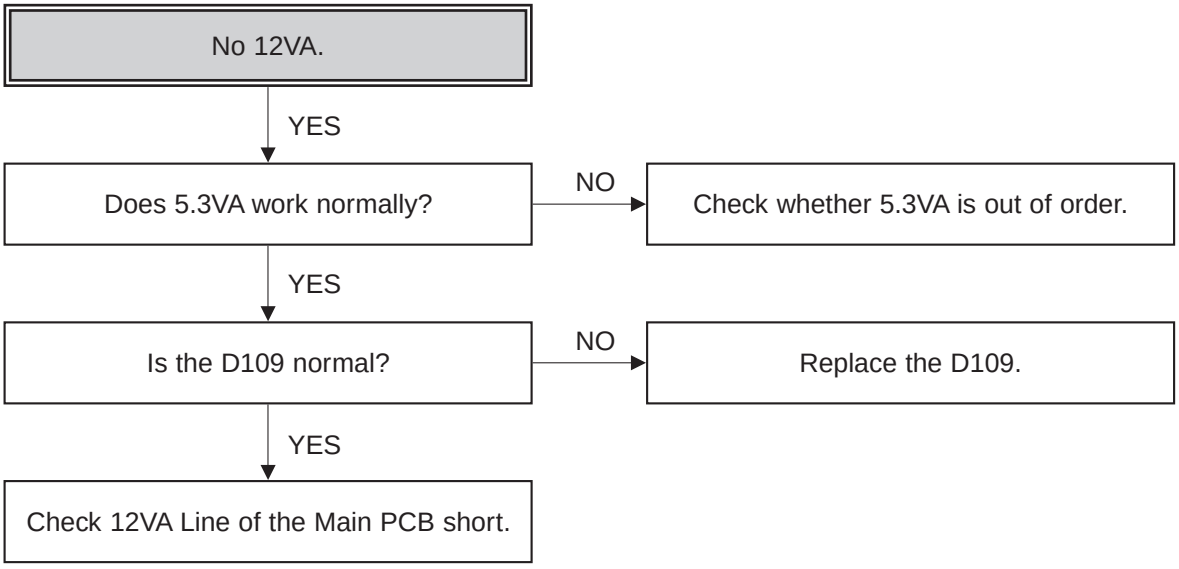
ELECTRICAL TROUBLESHOOTING GUIDE

1. Power Circuit(SMPS)

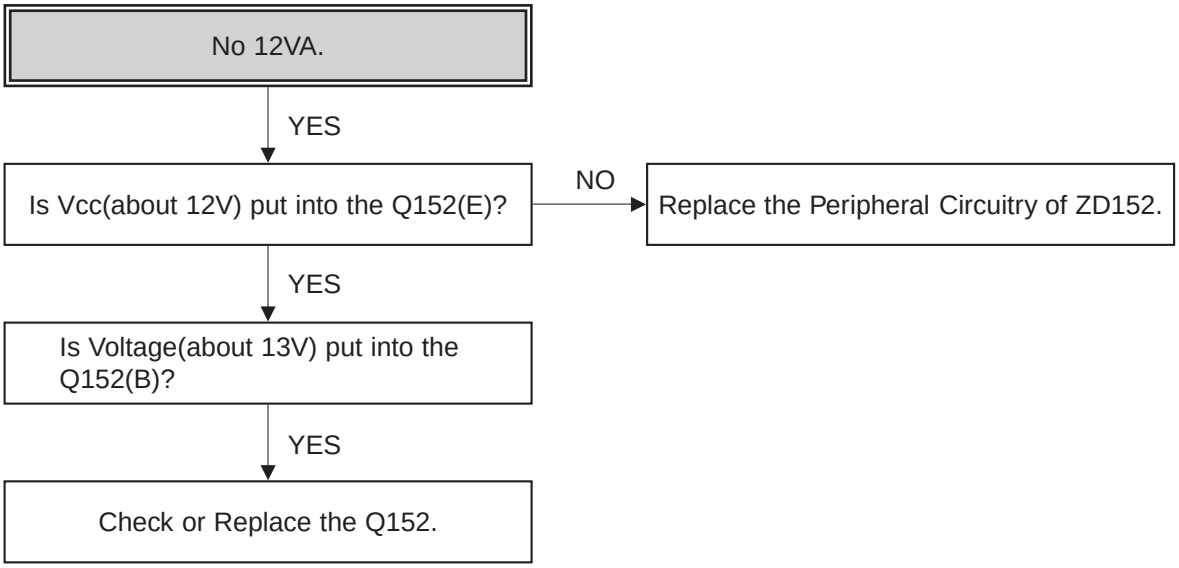
(1) No 5.3VA.



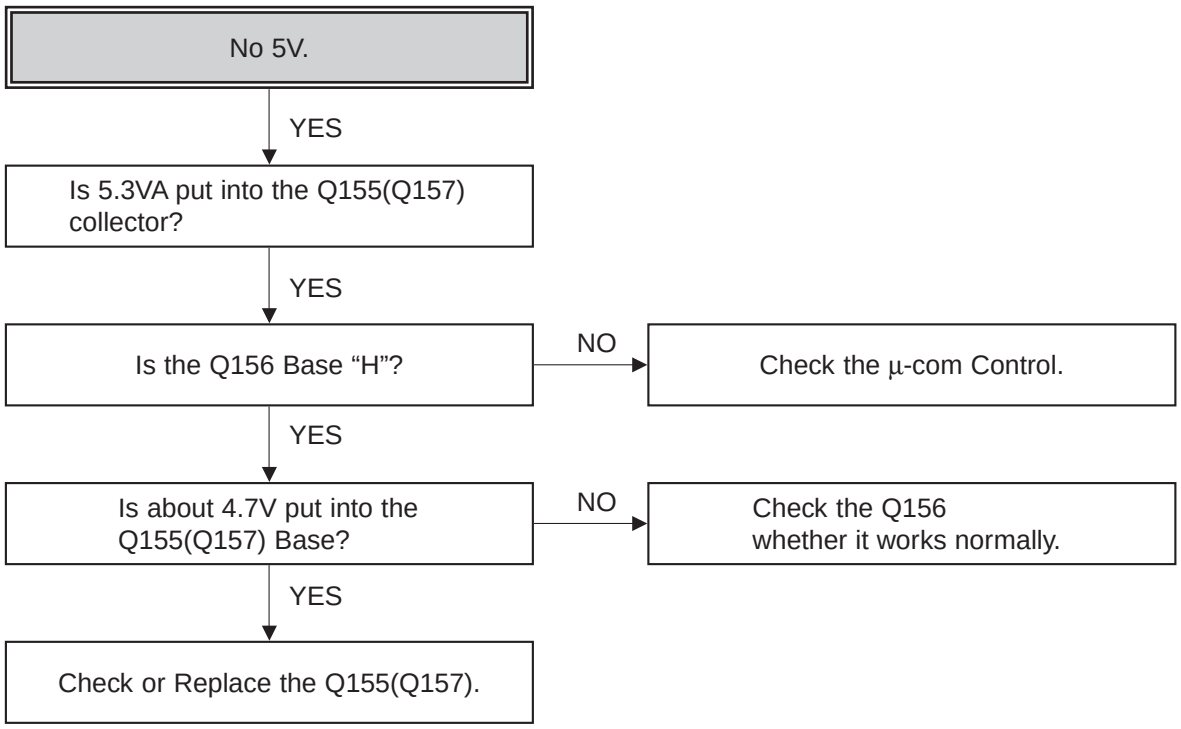
(2) No 12VA.(Capstan)



(3) No 12V (Hi-Fi, Buffer)

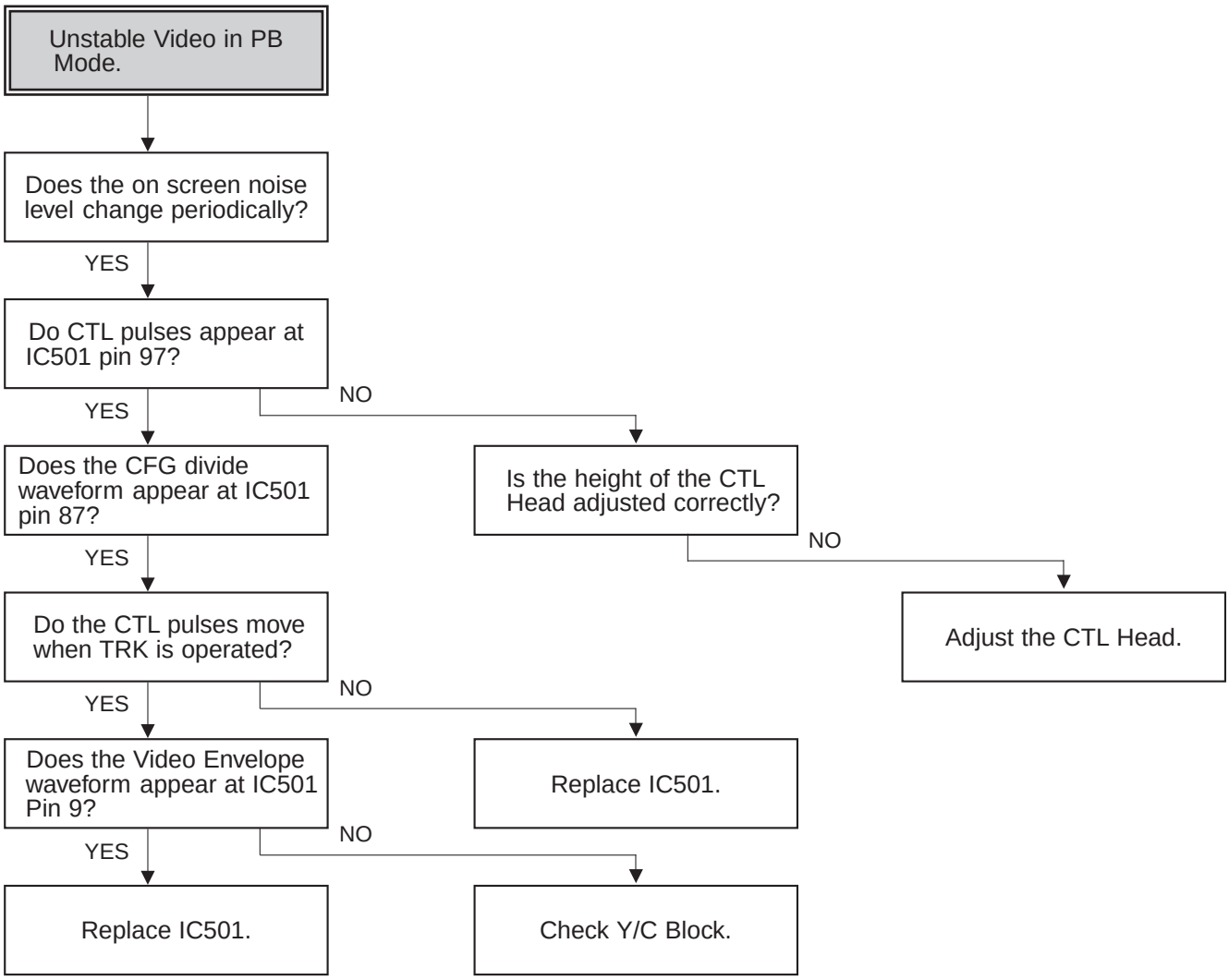


(4) No 5V

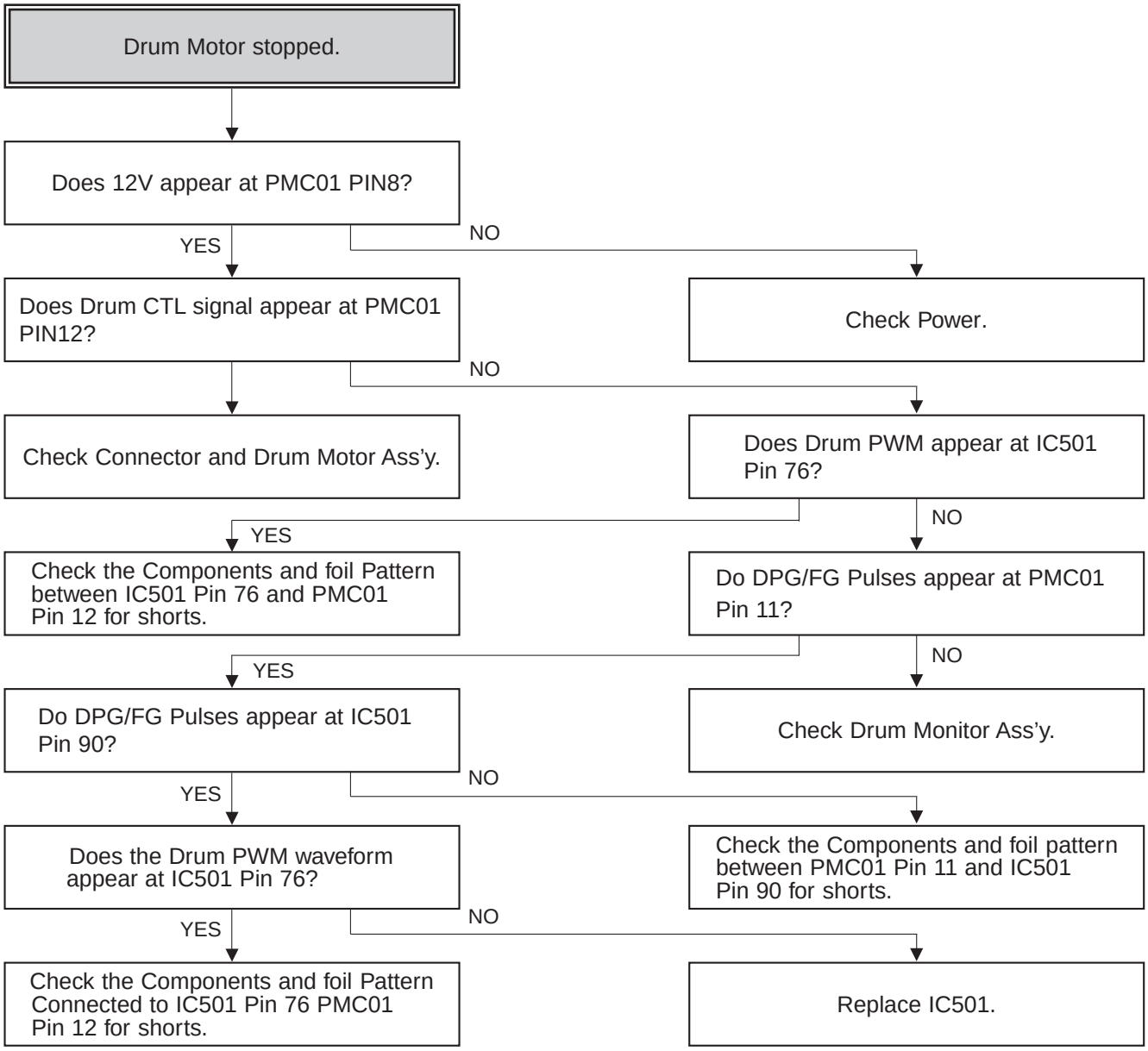

No 5V.
YES
Is 5.3VA put into the Q155(Q157) collector?
YES
Is the Q156 Base “H”?
NO
Check the μ-com Control.
YES
Is about 4.7V put into the Q155(Q157) Base?
NO
Check the Q156 whether it works normally.
YES
Check or Replace the Q155(Q157).

2. Servo Circuit

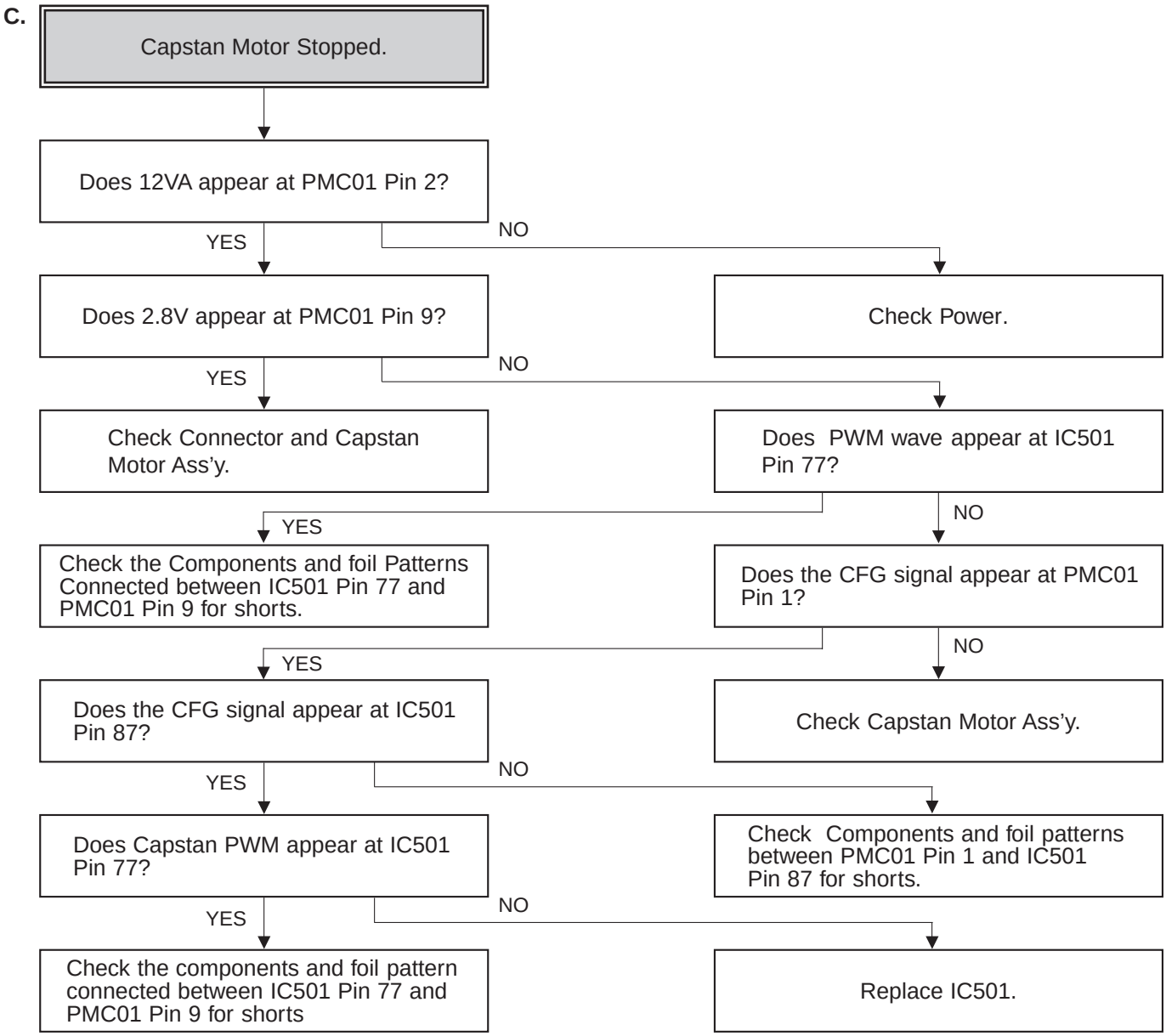
A.


Unstable Video in PB Mode.
Does the on screen noise level change periodically?
YES
Do CTL pulses appear at IC501 pin 97?
NO
YES
Does the CFG divide waveform appear at IC501 pin 87?
Is the height of the CTL Head adjusted correctly?
NO
YES
Adjust the CTL Head.
Do the CTL pulses move when TRK is operated?
NO
YES
Does the Video Envelope waveform appear at IC501 Pin 9?
Replace IC501.
NO
YES
Replace IC501.
Check Y/C Block.

B.

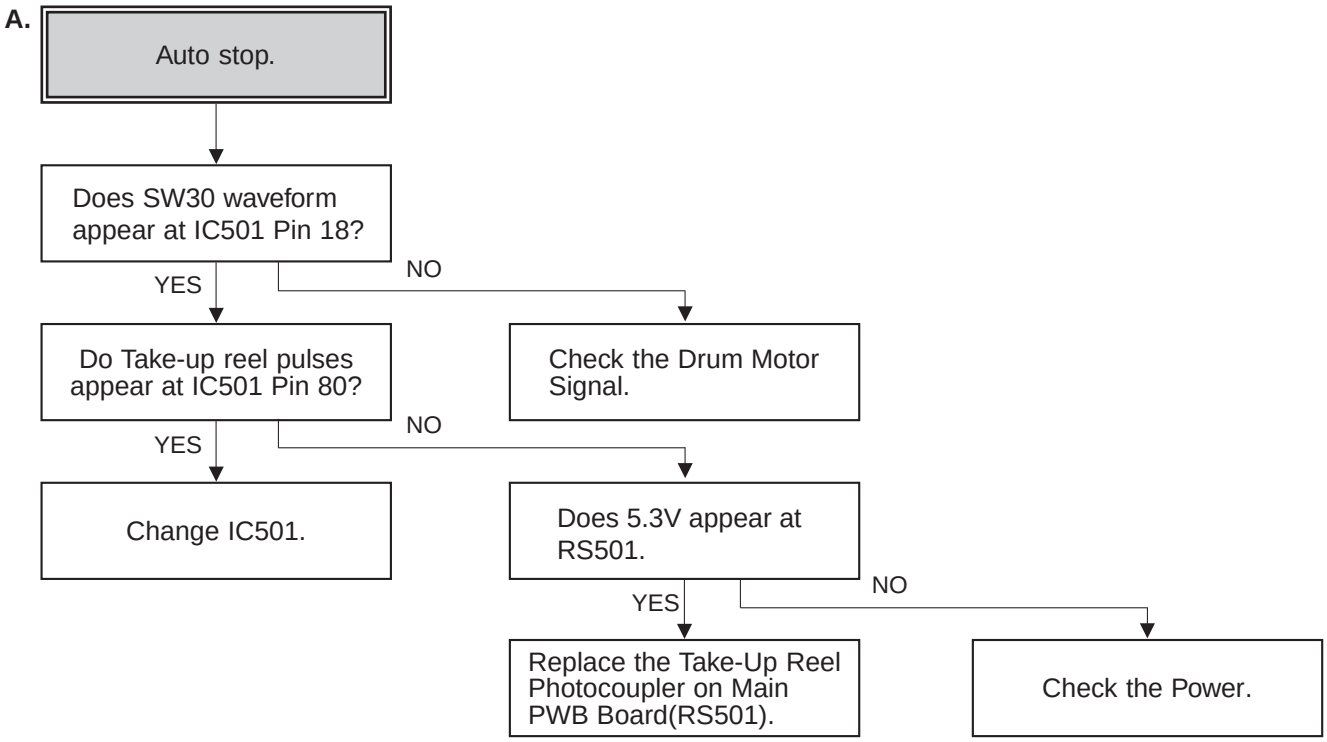

Drum Motor stopped.
Does 12V appear at PMC01 PIN8?
YES
NO
Check Power.
Does Drum CTL signal appear at PMC01 PIN12?
NO
Check Connector and Drum Motor Ass'y.
Does Drum PWM appear at IC501 Pin 76?
YES
NO
Check the Components and foil Pattern between IC501 Pin 76 and PMC01 Pin 12 for shorts.
Do DPG/FG Pulses appear at PMC01 Pin 11?
YES
NO
Do DPG/FG Pulses appear at IC501 Pin 90?
Check Drum Monitor Ass'y.
YES
NO
Does the Drum PWM waveform appear at IC501 Pin 76?
Check the Components and foil pattern between PMC01 Pin 11 and IC501 Pin 90 for shorts.
YES
NO
Check the Components and foil Pattern Connected to IC501 Pin 76 PMC01 Pin 12 for shorts.
Replace IC501.

C.

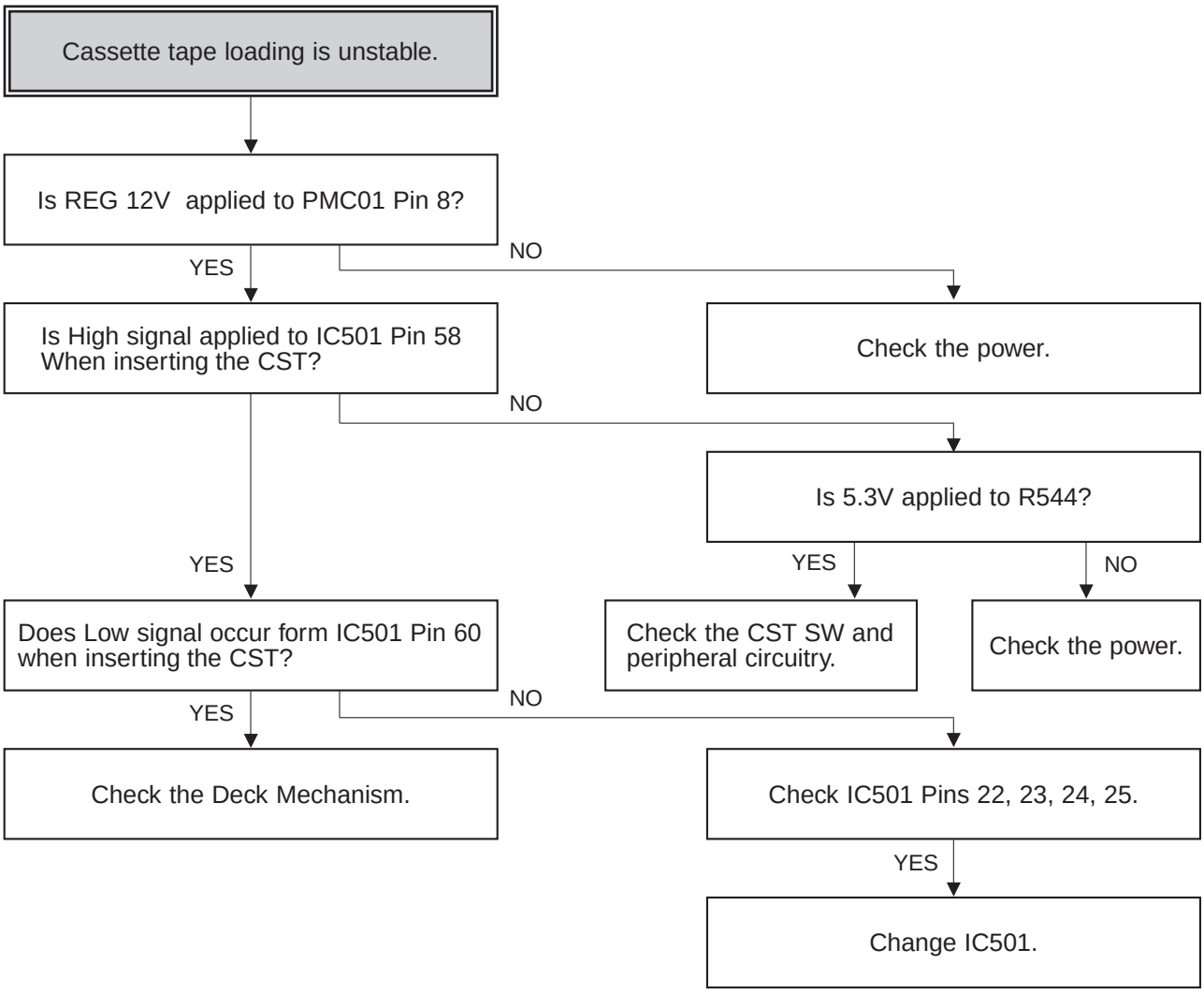

Capstan Motor Stopped.
Does 12VA appear at PMC01 Pin 2?
YES
NO
Does 2.8V appear at PMC01 Pin 9?
Check Power.
YES
NO
Check Connector and Capstan Motor Ass'y.
Does PWM wave appear at IC501 Pin 77?
YES
NO
Check the Components and foil Patterns Connected between IC501 Pin 77 and PMC01 Pin 9 for shorts.
Does the CFG signal appear at PMC01 Pin 1?
YES
NO
Does the CFG signal appear at IC501 Pin 87?
Check Capstan Motor Ass'y.
YES
NO
Does Capstan PWM appear at IC501 Pin 77?
Check Components and foil patterns between PMC01 Pin 1 and IC501 Pin 87 for shorts.
YES
NO
Check the components and foil pattern connected between IC501 Pin 77 and PMC01 Pin 9 for shorts
Replace IC501.

3. System & Front Panel Circuit

A.

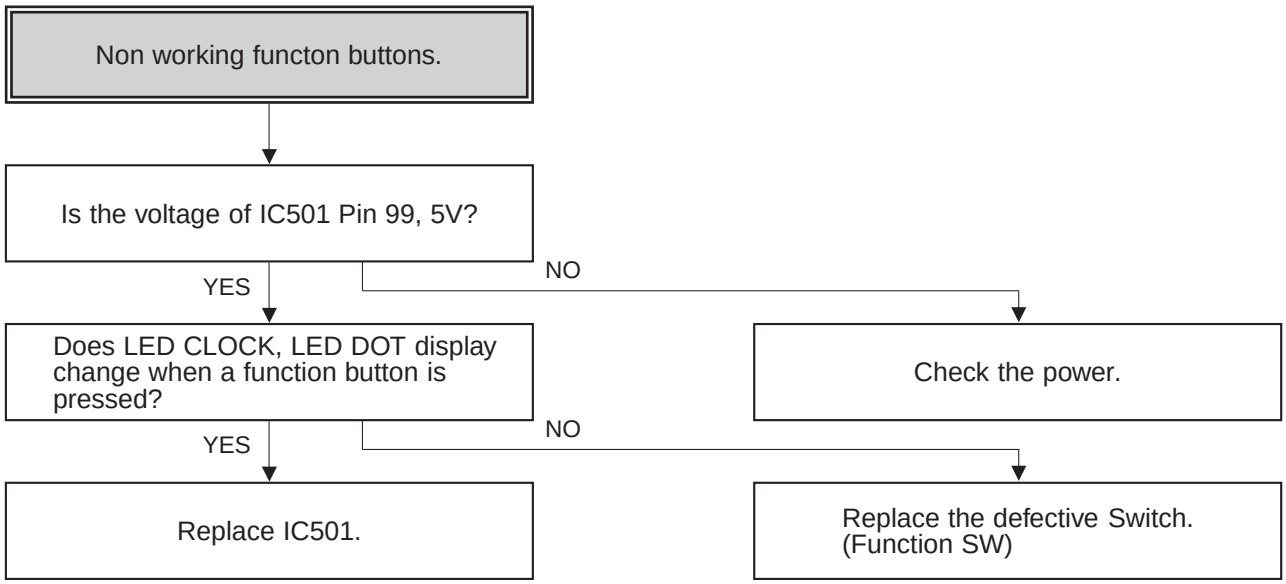


B.

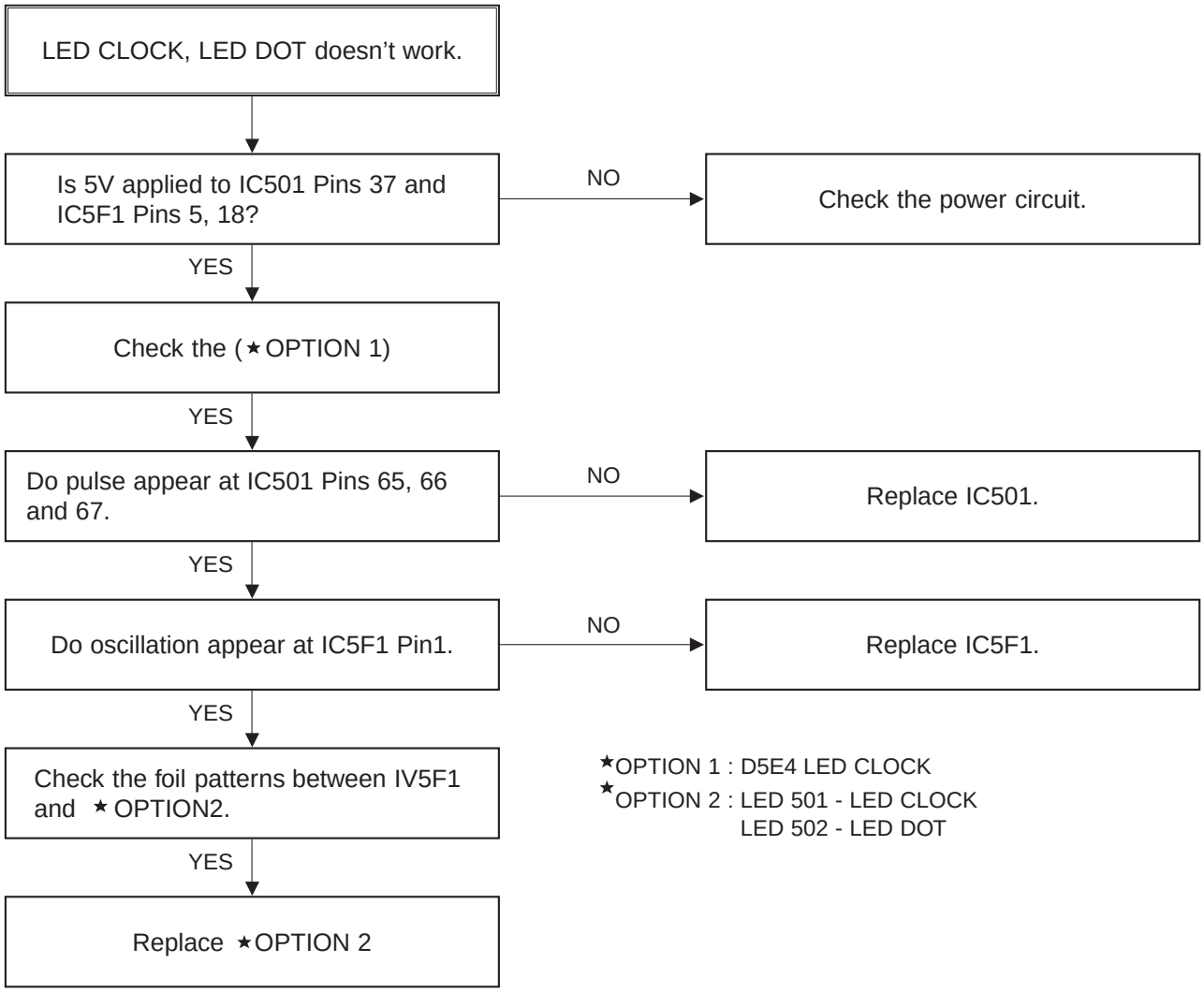


NOTE : Auto stop may also be caused by lack of lubrication,due to dried grease or oil.

C.


Non working functon buttons.
Is the voltage of IC501 Pin 99, 5V?
YES
NO
Does LED CLOCK, LED DOT display change when a function button is pressed?
Check the power.
YES
NO
Replace IC501.
Replace the defective Switch. (Function SW)

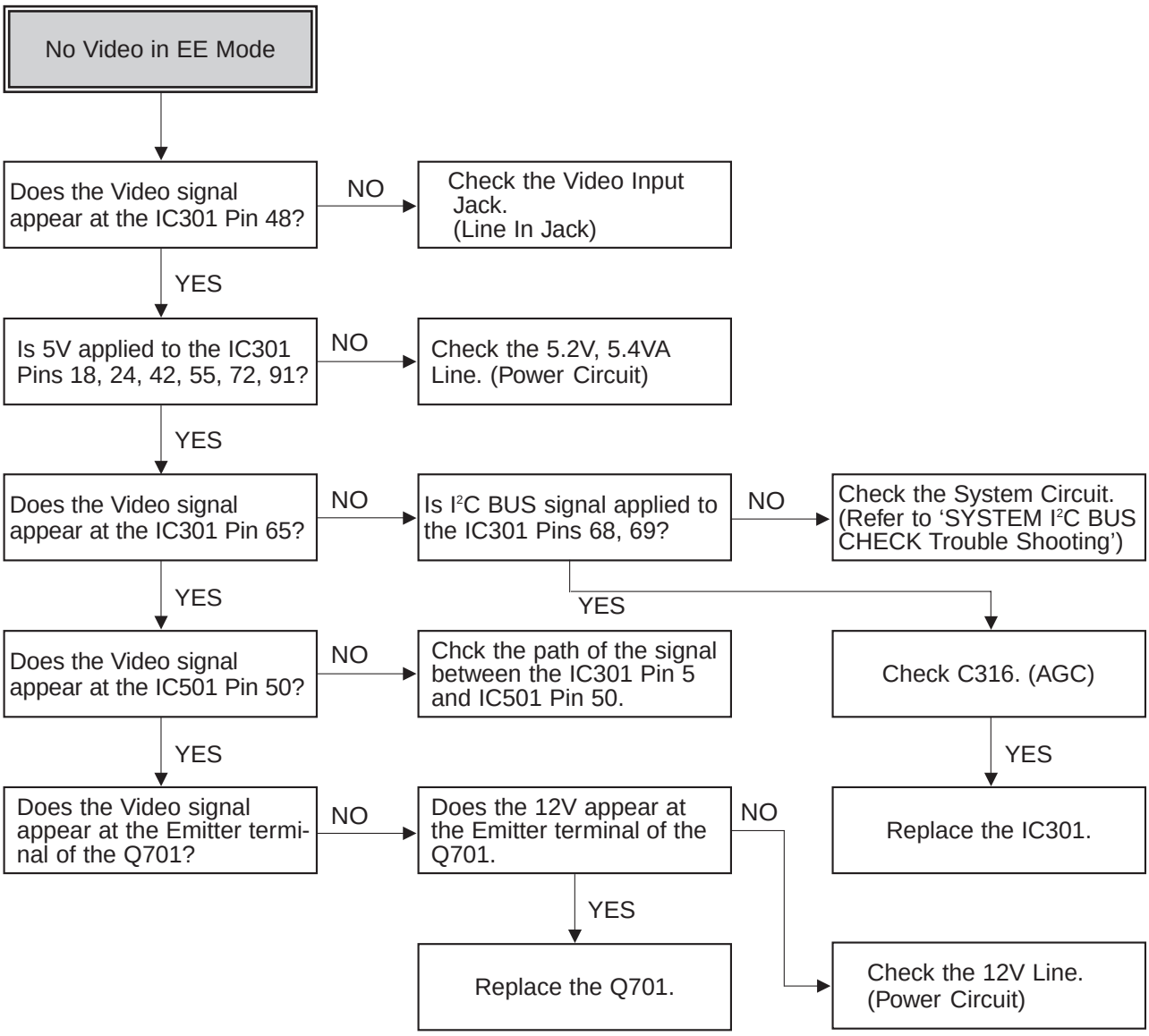
D.



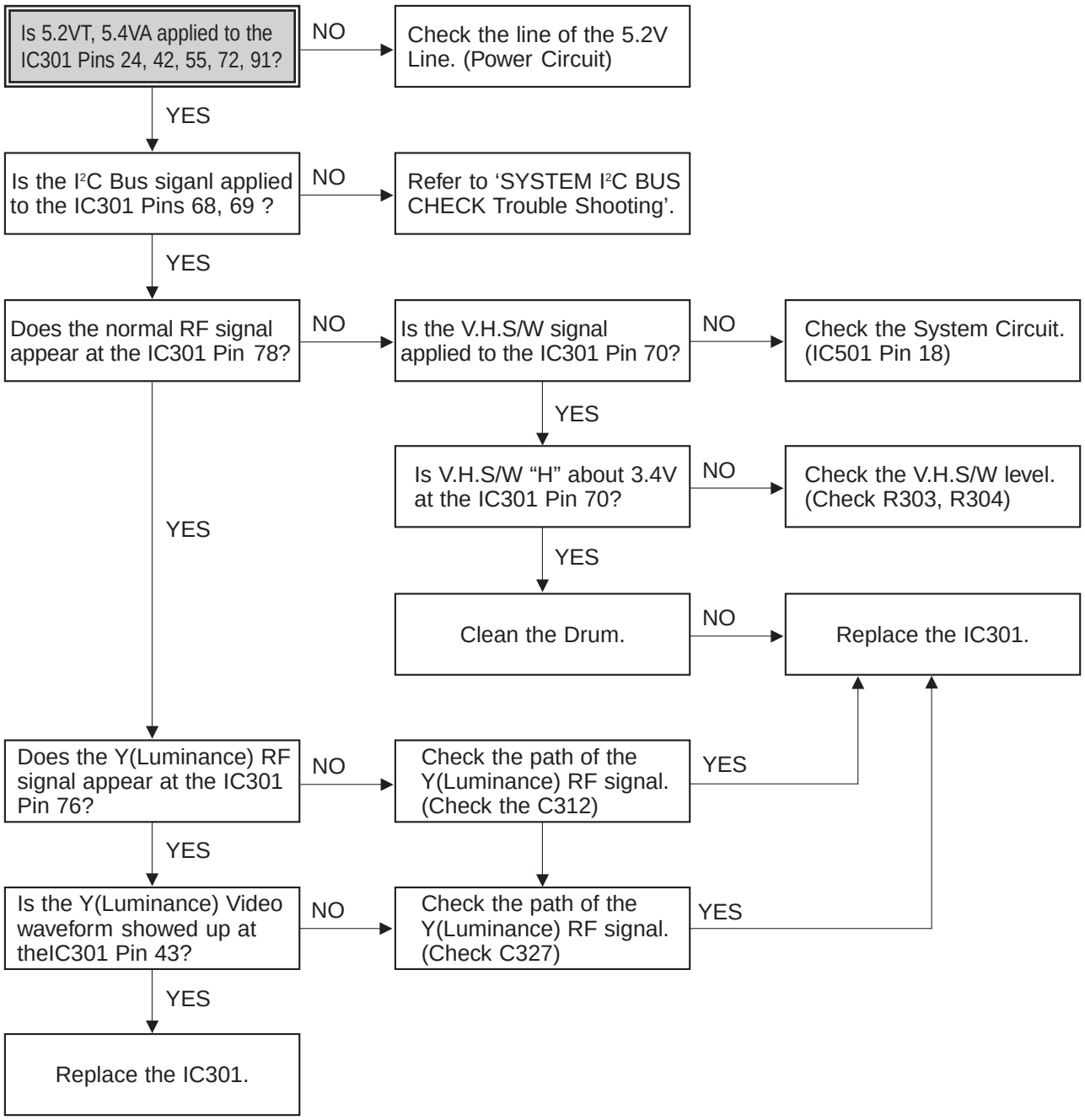
★OPTION 1 : D5E4 LED CLOCK
★OPTION 2 : LED 501 - LED CLOCK
LED 502 - LED DOT

4. Y/C CIRCUIT

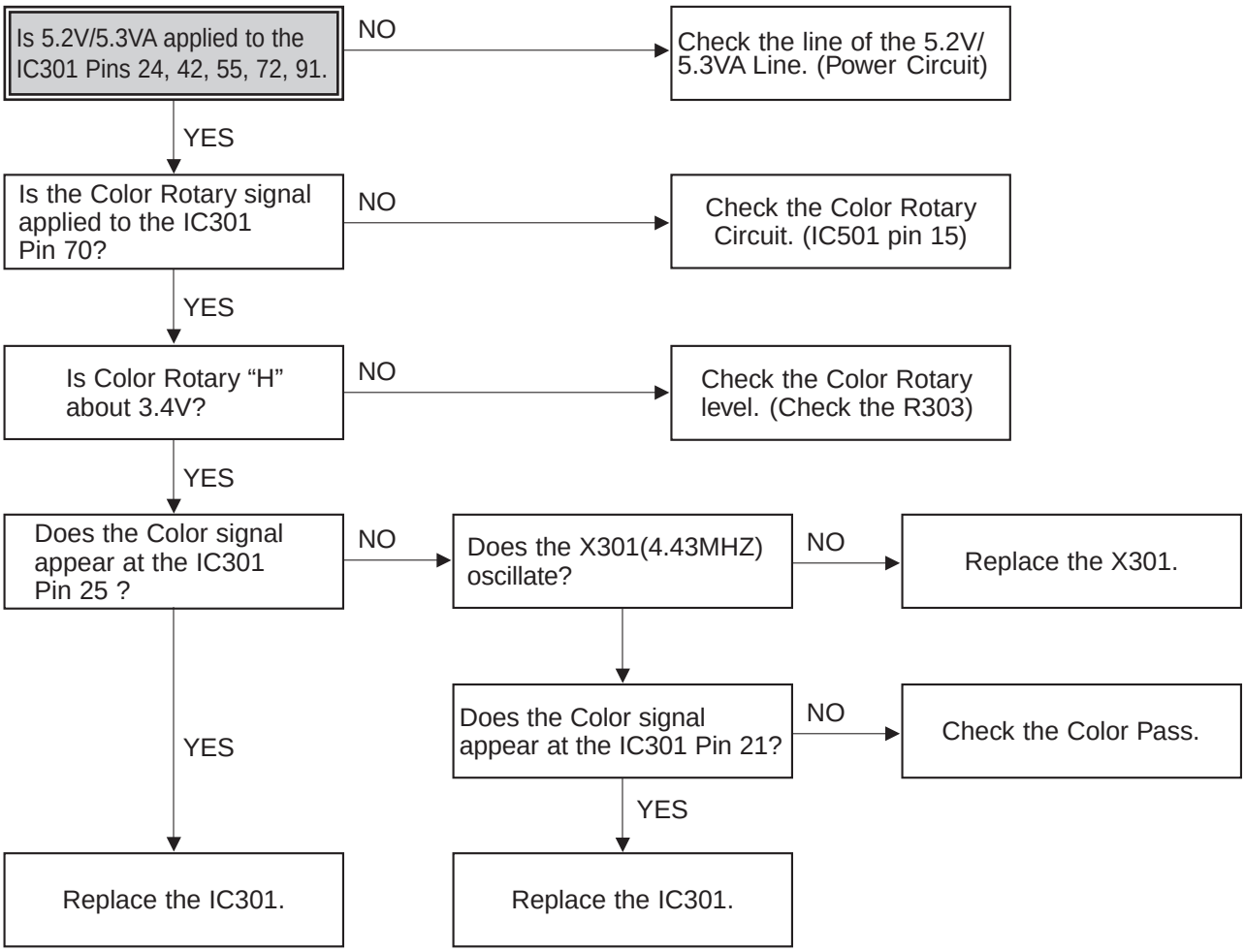
(1) No Video in EE Mode,


No Video in EE Mode
Does the Video signal appear at the IC301 Pin 48?
NO
Check the Video Input Jack. (Line In Jack)
YES
Is 5V applied to the IC301 Pins 18, 24, 42, 55, 72, 91?
NO
Check the 5.2V, 5.4VA Line. (Power Circuit)
YES
Does the Video signal appear at the IC301 Pin 65?
NO
Is I²C BUS signal applied to the IC301 Pins 68, 69?
NO
Check the System Circuit. (Refer to 'SYSTEM I²C BUS CHECK Trouble Shooting')
YES
YES
Does the Video signal appear at the IC501 Pin 50?
NO
Chck the path of the signal between the IC301 Pin 5 and IC501 Pin 50.
Check C316. (AGC)
YES
YES
Does the Video signal appear at the Emitter terminal of the Q701?
NO
Does the 12V appear at the Emitter terminal of the Q701.
NO
Replace the IC301.
YES
Replace the Q701.
Check the 12V Line. (Power Circuit)

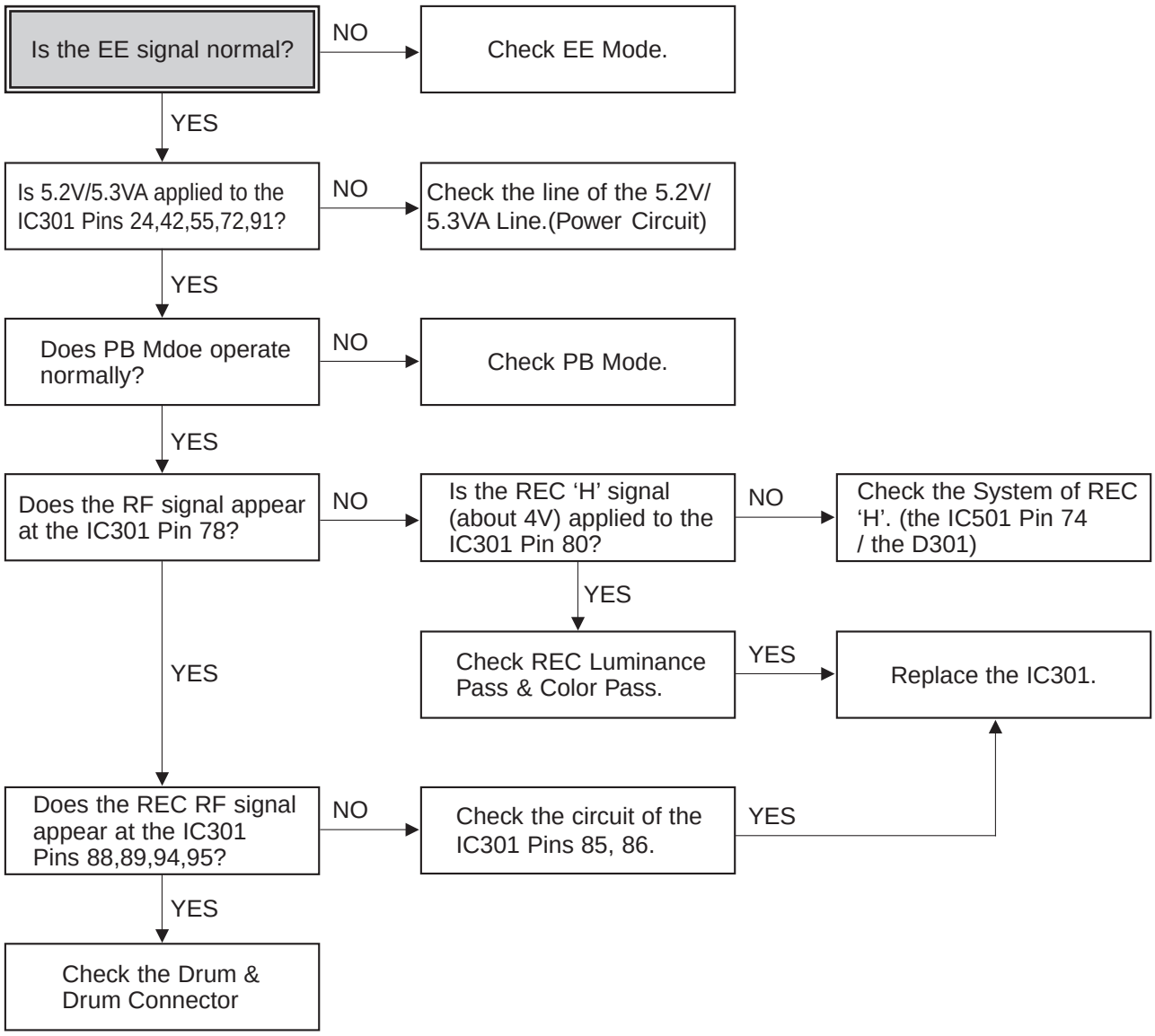
(2) When the Y(Luminance) signal doesn't appear on the screen in PB Mode,


Is 5.2VT, 5.4VA applied to the IC301 Pins 24, 42, 55, 72, 91?
NO
Check the line of the 5.2V Line. (Power Circuit)
YES
Is the I²C Bus siganl applied to the IC301 Pins 68, 69 ?
NO
Refer to 'SYSTEM I²C BUS CHECK Trouble Shooting'.
YES
Does the normal RF signal appear at the IC301 Pin 78?
NO
Is the V.H.S/W signal applied to the IC301 Pin 70?
NO
Check the System Circuit. (IC501 Pin 18)
YES
Is V.H.S/W "H" about 3.4V at the IC301 Pin 70?
NO
Check the V.H.S/W level. (Check R303, R304)
YES
YES
Clean the Drum.
NO
Replace the IC301.
Does the Y(Luminance) RF signal appear at the IC301 Pin 76?
NO
Check the path of the Y(Luminance) RF signal. (Check the C312)
YES
YES
Is the Y(Luminance) Video waveform showed up at theIC301 Pin 43?
NO
Check the path of the Y(Luminance) RF signal. (Check C327)
YES
YES
Replace the IC301.

(3) When the C(Color) signal doesn't appear on the screen in PB Mode,

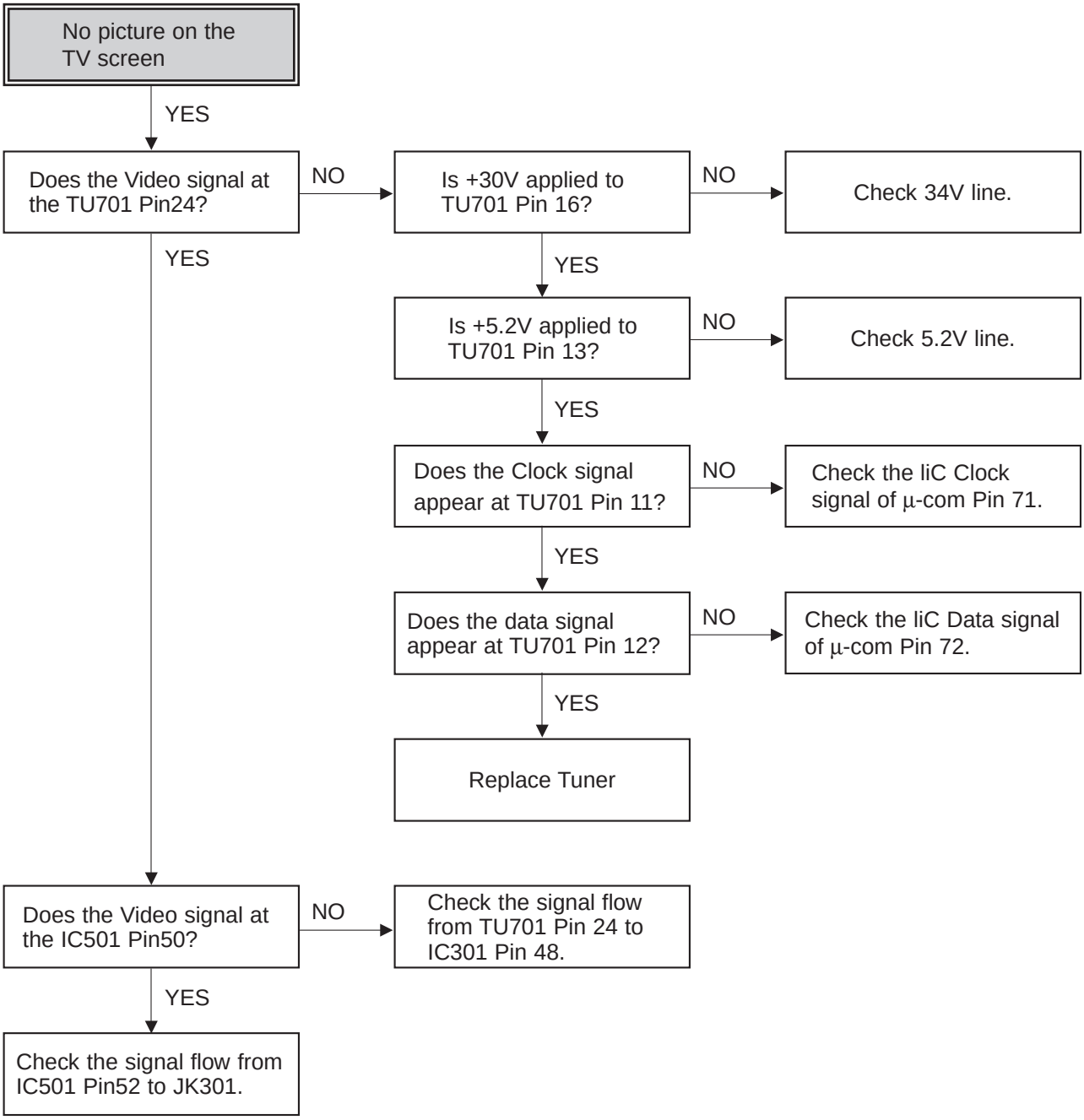

Is 5.2V/5.3VA applied to the IC301 Pins 24, 42, 55, 72, 91.
NO
Check the line of the 5.2V/ 5.3VA Line. (Power Circuit)
YES
Is the Color Rotary signal applied to the IC301 Pin 70?
NO
Check the Color Rotary Circuit. (IC501 pin 15)
YES
Is Color Rotary "H" about 3.4V?
NO
Check the Color Rotary level. (Check the R303)
YES
Does the Color signal appear at the IC301 Pin 25 ?
NO
Does the X301(4.43MHZ) oscillate?
NO
Replace the X301.
YES
Does the Color signal appear at the IC301 Pin 21?
NO
Check the Color Pass.
YES
Replace the IC301.
Replace the IC301.

(4) When the Video signal doesn't appear on the screen in REC Mode,

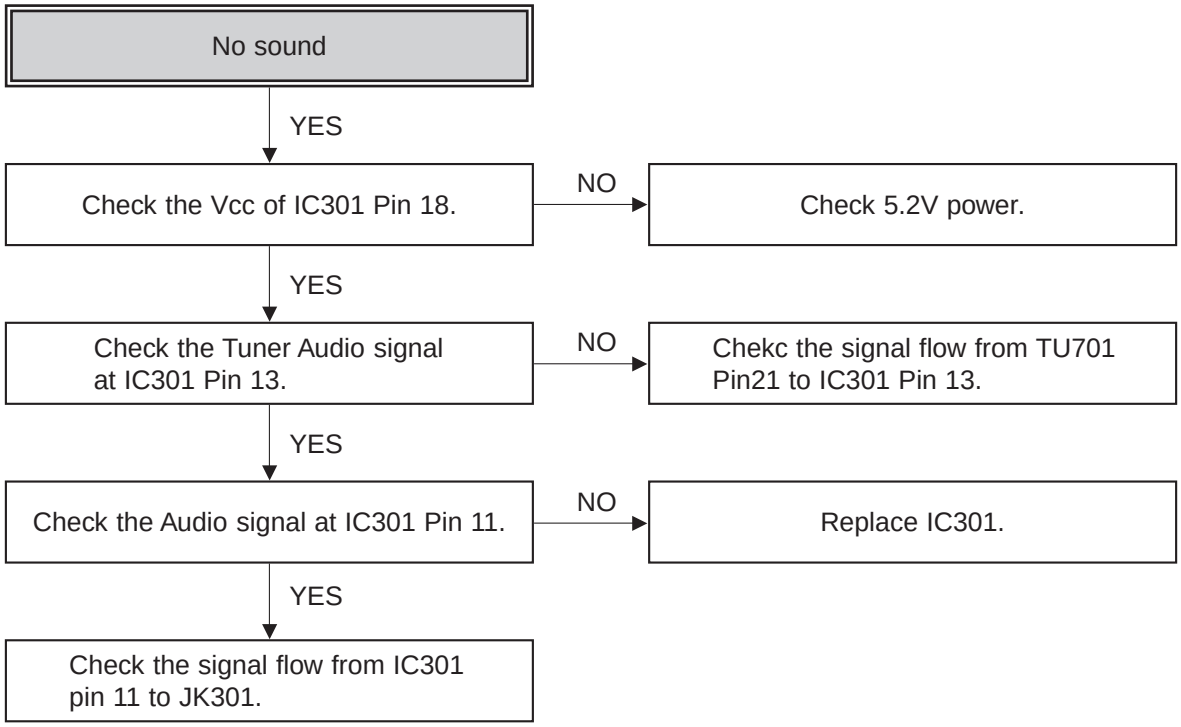

Is the EE signal normal?
NO
Check EE Mode.
YES
Is 5.2V/5.3VA applied to the IC301 Pins 24,42,55,72,91?
NO
Check the line of the 5.2V/ 5.3VA Line.(Power Circuit)
YES
Does PB Mdoe operate normally?
NO
Check PB Mode.
YES
Does the RF signal appear at the IC301 Pin 78?
NO
Is the REC 'H' signal (about 4V) applied to the IC301 Pin 80?
NO
Check the System of REC 'H'. (the IC501 Pin 74 / the D301)
YES
Check REC Luminance Pass & Color Pass.
YES
Replace the IC301.
YES
Does the REC RF signal appear at the IC301 Pins 88,89,94,95?
NO
Check the circuit of the IC301 Pins 85, 86.
YES
YES
Check the Drum & Drum Connector

5. Tuner/IF circuit

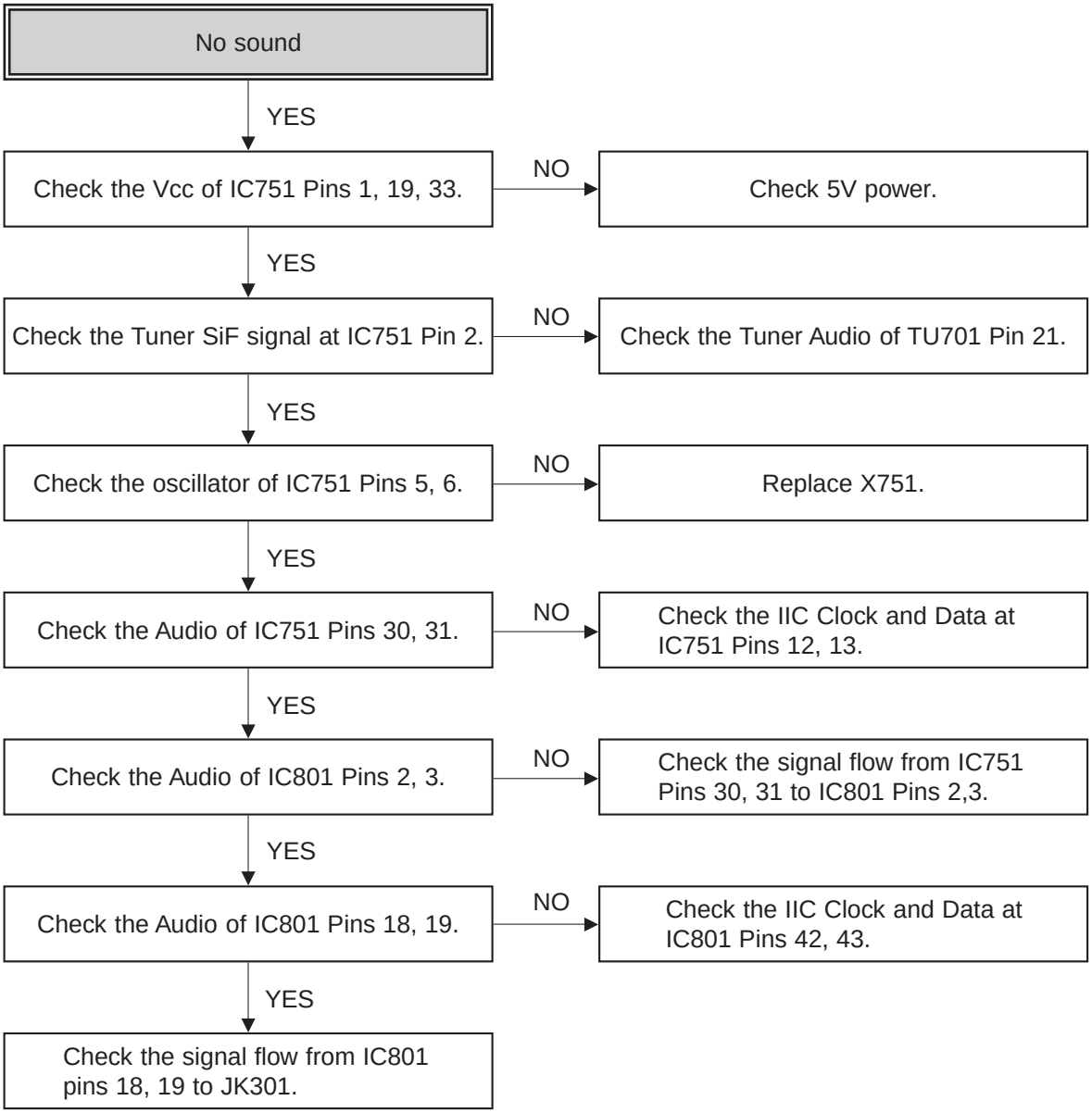
(1) No picture on the TV screen


No picture on the TV screen
YES
Does the Video signal at the TU701 Pin24?
NO
Is +30V applied to TU701 Pin 16?
NO
Check 34V line.
YES
Is +5.2V applied to TU701 Pin 13?
NO
Check 5.2V line.
YES
Does the Clock signal appear at TU701 Pin 11?
NO
Check the liC Clock signal of μ-com Pin 71.
YES
Does the data signal appear at TU701 Pin 12?
NO
Check the liC Data signal of μ-com Pin 72.
YES
Replace Tuner
YES
Does the Video signal at the IC501 Pin50?
NO
Check the signal flow from TU701 Pin 24 to IC301 Pin 48.
YES
Check the signal flow from IC501 Pin52 to JK301.

(2) No sound (Mono Model)

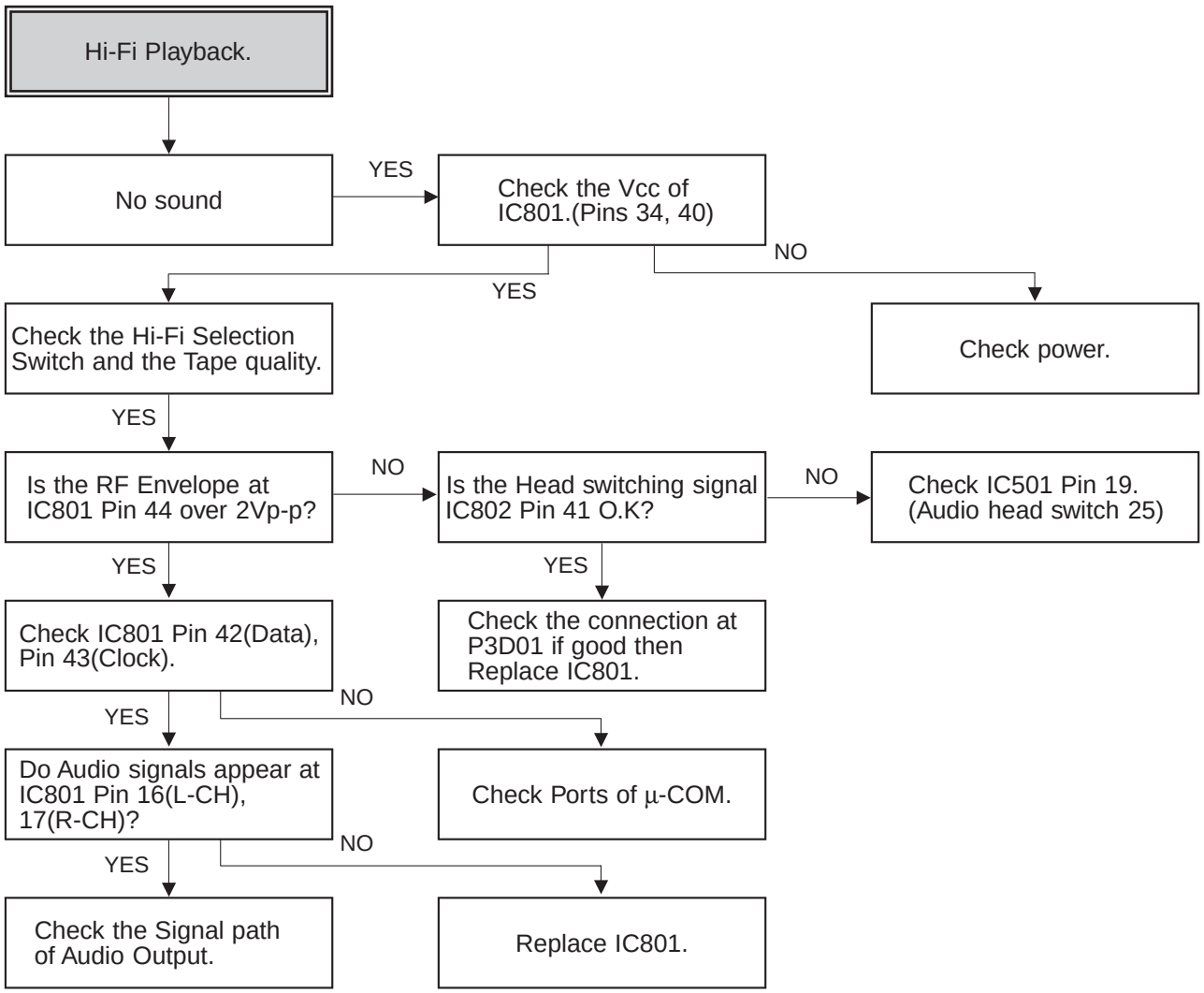


(3) No sound (Hi-Fi Model)

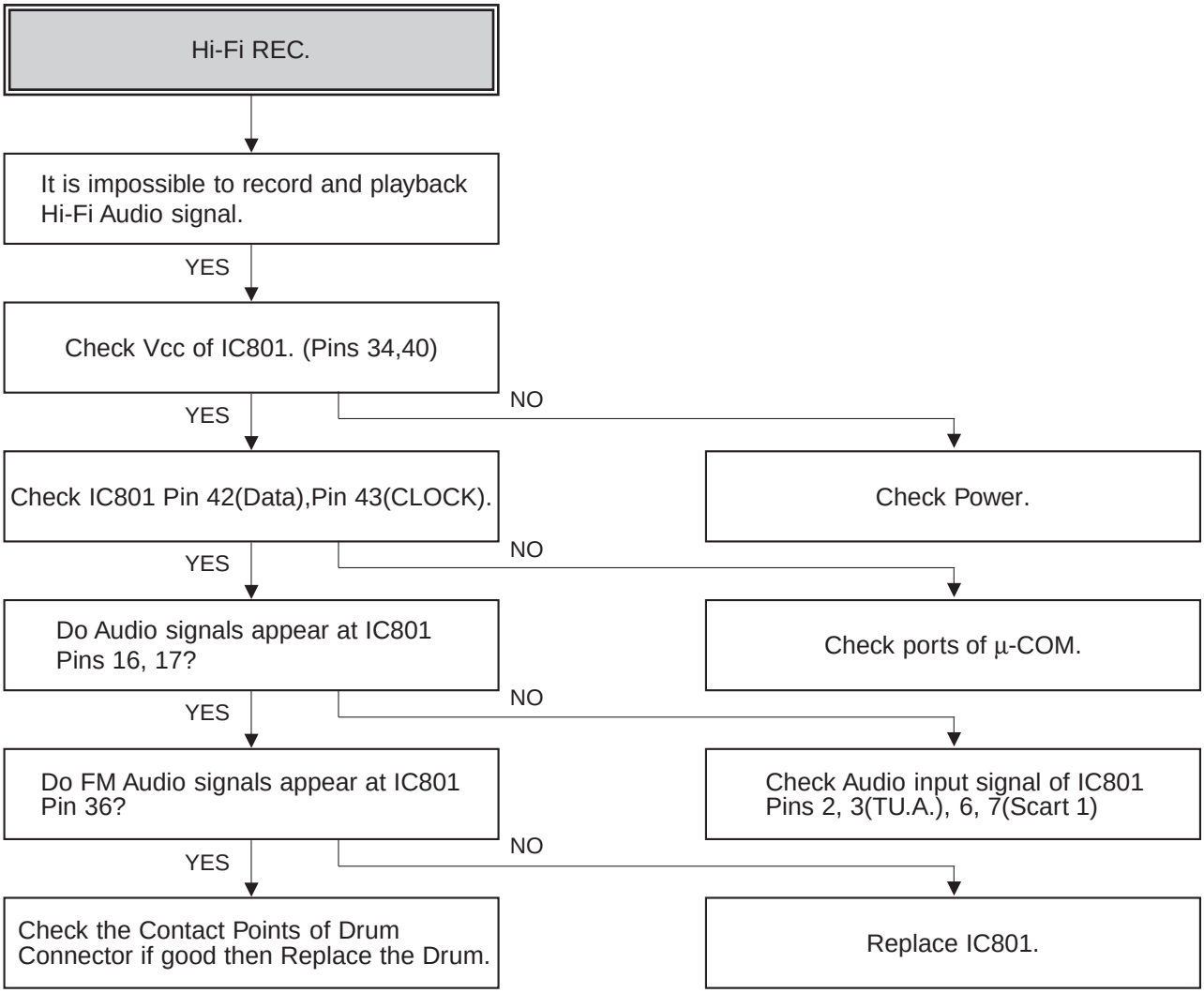

No sound
YES
Check the Vcc of IC751 Pins 1, 19, 33.
NO
Check 5V power.
YES
Check the Tuner SiF signal at IC751 Pin 2.
NO
Check the Tuner Audio of TU701 Pin 21.
YES
Check the oscillator of IC751 Pins 5, 6.
NO
Replace X751.
YES
Check the Audio of IC751 Pins 30, 31.
NO
Check the IIC Clock and Data at IC751 Pins 12, 13.
YES
Check the Audio of IC801 Pins 2, 3.
NO
Check the signal flow from IC751 Pins 30, 31 to IC801 Pins 2,3.
YES
Check the Audio of IC801 Pins 18, 19.
NO
Check the IIC Clock and Data at IC801 Pins 42, 43.
YES
Check the signal flow from IC801 pins 18, 19 to JK301.

6. Hi-Fi Circuit (Hi-Fi Model)

A.



B.


Hi-Fi REC.
It is impossible to record and playback Hi-Fi Audio signal.
YES
Check Vcc of IC801. (Pins 34,40)
NO
YES
Check Power.
Check IC801 Pin 42(Data),Pin 43(CLOCK).
NO
YES
Check ports of μ-COM.
Do Audio signals appear at IC801 Pins 16, 17?
NO
YES
Check Audio input signal of IC801 Pins 2, 3(TU.A.), 6, 7(Scart 1)
Do FM Audio signals appear at IC801 Pin 36?
NO
YES
Replace IC801.
Check the Contact Points of Drum Connector if good then Replace the Drum.

JVC

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